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Nuclear, Biological & Chemical Target Dominant Source Knowledge Base Development

Volume 2—Appendix J–Programmer's Guide

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This report is the second of two volumes describing a relational database system of world wide nuclear, biological and chemical (NBC) sources for DNA's Hazard Prediction and Assessment Capability (HPAC). This volume provides a guide for programmers to use in continuing development of the database. It is not intended as a user's manual.

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EXECUTIVE SUMMARY

As part of the Defense Nuclear Agency's mission to support the theater Commanders-in-Chief, Services, Joint Staff, Office of the Secretary of Defense, and the North Atlantic Treaty Organization, the Defense Nuclear Agency (DNA) has developed tools to predict the consequences of using weapons of mass destruction on the battlefield. There has, however, been a growing realization that violent actions taken against *any* (i.e., military or civilian) nuclear, chemical, or biological facilities could have significant consequences. DNA's Hazard Prediction and Assessment Capability (HPAC) program has undertaken a significant range of efforts in preparation for responding to potential releases of acutely hazardous nuclear, biological, or chemical (NBC) materials anywhere in the world.

The objective of this effort was to develop a knowledge base of NBC facilities containing acutely hazardous materials. This report covers the efforts which created the knowledge base system of these facilities in sufficient detail to allow replication of the effort and with documentation of lessons learned to facilitate maintenance of the databases. This volume of the report provides information for programmers who will be accessing and maintaining the database. It is not a user's guide.

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APPENDIX J

HPAC PROGRAMMER'S GUIDE

J.1 PURPOSE.

The HPAC database uses the Paradox for Windows, version 5.0 database engine. The purpose of this guide is to provide information to Paradox programmers for accessing and maintaining the database. It is not a user's manual.

All figures and tables are consolidated at the end of this Appendix; figures precede the tables.

J.2 DATABASE STRUCTURE.

The HPAC database consists of database tables, forms, reports, and queries.

The database itself consists of 50 tables organized into five main subject areas:

- Agencies with responsibilities in nuclear, biological, and/or chemical downwind hazard prediction, modeling, and emergency response (alias name: AGENCY)
- Biological production/storage facilities and agents (alias name: BIO)
- Chemical production/storage facilities and agents (alias name: CHEM)
- Subject matter experts on nuclear, biological, and/or chemical downwind hazard prediction, modeling, and emergency response (alias name: EXPERTS)
- Nuclear facilities (alias name: NUCLEAR)

The nuclear facilities topical area is further subdivided into three groupings:

- Nuclear power reactors
- Nuclear research reactors
- Other nuclear fuel cycle facilities (i.e., other than power and research reactors)

With a few exceptions (e.g., the COUNTRY table, nominally a part of the NUCLEAR topical area, is used by each of the subject areas when country specific data is needed), the tables of each subject grouping are independent and are not designed to interact with the tables of another subject grouping.

Table J-1 lists the different data tables grouped by subject area while Tables J-2 through J-11 provide detailed descriptions of the fields in each table and indicate which fields provide links between the data tables.

J.2.1 Physical Organization.

The database tables are located in specific subdirectories. These subdirectories are given separate aliases in Paradox. These aliases and their subdirectories are:

ALIAS	SUBDIRECTORY
:NUCLEAR:	<drive>:\DNA\DATA\PDOX\NUC
:CHEM:	<drive>:\DNA\DATA\PDOX\CHEM
:BIO:	<drive>:\DNA\DATA\PDOX\BIO
:AGENCY:	<drive>:\DNA\DATA\PDOX\AGENCY
:EXPERTS:	<drive>:\DNA\DATA\PDOX\EXPERTS

A collection of images is tied to some of the forms. These can be found in:

:IMAGES:	<drive>:\DNA\DATA\IMAGES

J.2.2 The NUCLEAR Alias.

The 16 nuclear database tables (see Tables J-2 through J-4) describe the commercial nuclear industry. The industry is divided into three primary areas as described below.

J.2.2.1 Nuclear Power Reactors. The purpose of the five database tables for power reactors (Table J-2) is to describe the most important attributes of a nuclear power station. One unique aspect of power reactors is that the typical site (location) will often have two or more reactors (facilities). This is the reason for the many to one relationship between N_FACIL and N_LOCAT.

Most of this data was collected from the International Atomic Energy Agency's (IAEA) Power Reactor Information System (PRIS) database and imported electronically into the database. The PRIS data was then checked and supplemented with data entered manually from *Nuclear Engineering International, World Nuclear Industry Handbook,* and *Nuclear News' World Nuclear Power Plants.*

The database tables for power reactors are all prefixed by N_.

J.2.2.2 Nuclear Research Reactors. There are nine tables used for describing research reactors (Table J-3). These tables were obtained from the IAEA. Despite repeated attempts, the project team was unable to obtain documentation for what each field contained. For this reason the IAEA data was not changed from its original form except to translate the tables into PARADOX format. Two tables were added as look-up tables: NRE_STAT, which describes the status codes, and NRE_CAT, which details the reactor categories. Since there are a number of different reactor types, the database appears to have been designed as a "one size fits all" database. There are many empty fields for data that are not applicable for a particular reactor type.

The research reactors tables are prefixed with NRE_.

J.2.2.3 Other Nuclear Fuel Cycle Facilities. The IAEA and other authorities define the fuel cycle as the process of taking fuel from the ground as ore and manipulating the fuel material until it has become spent fuel being stored for eternity. The Fuel Cycle tables track the large number of facilities through which the fuel passes. Two exceptions are power reactors and research reactors, considered as special cases and tracked in their own database tables.

The IAEA provided the data for these tables (Table J-4) from their NFCIS (Nuclear Fuel Cycle Information System) program. NFCIS uses a GIS as a front end for its data. The GIS uses a flat file in .DBF format that contains a great deal of information that is useful only to the GIS. This extra data had to be stripped from the original files before it could be used for HPAC. The depth of data available from NFCIS was not as great as for power reactors and research reactors so only two tables were needed.

Fuel cycle tables are prefixed with NFC_.

J.2.2.4 Country Codes. The two-character Country field in N_LOCAT and other tables is the IAEA Country Code. This data is held in the COUNTRY table (see Table J-5). The IAEA's two-letter codes are roughly based, with IAEA modifications, on the codes found in ISO-3166, 1993 edition, "Codes for Standard Representations of Countries." The COUNTRY table is a simple look-up table in which each country code is translated into full text country names. Country codes and other abbreviations used in the nuclear data base are listed in Table J-6.

COUNTRY.DB is physically located in the :NUCLEAR: alias (see Volume I, Appendix A, Glossary, for a description of a Paradox alias).

J.2.3 The CHEM Alias.

Table J-7 contains 10 chemical database tables that describe typical chemical production facilities and the chemicals they produce. Due to the large number of different compounds produced, imported, stored, and used, there is a large variance in how chemical plants are designed. To capture these differences in the database, four tables are used to describe the physical facility. The remaining six tables describe the chemicals that are produced.

The chemical database tables are prefixed with C_.

J.2.3.1 Facilities Descriptions. Each Facility ID Number (FID) identifies a single chemical production or storage area under a single administration and with a particular geographic latitude-longitude coordinate. In the first deliverable, there were 3745 facilities.

The Location table (C_LOCATE) provides the geographic location (latitude and longitude) and address for each FID facility. This location provides a geographic reference point for the buildings within the facility.

Unlike nuclear reactors, where each reactor is so distinct that it can be identified as a separate facility at a location, a chemical plant can have hundreds of places from which different chemicals can escape. This phenomenon is handled by the Chemicals Produced table (C_PRDC), which provides modeling information for release of a single chemical mixture from a single FID. There can be multiple mixtures released from a single FID.

Each possible release is identified by its FID, the structure from which it escapes (a "structure" can be a pipe, a tank, or any other fixed or semi-fixed identifiable object), a chemical identification number (CID), and a scenario. For example, one scenario could define an instantaneous release of a relatively pure chemical from a process building while another could define a long duration release of a mixture from a ruptured pipe in the same building. In the first deliverable, no scenarios were defined.

The Location table contains precise location information for each building such as its dimensions and distance in meters from the location (latitude-longitude) of the facility. The first deliverable (only 23,176 records) provided no actual detailed structure locations.

The Design Type table (C_DESIGN) provides a very short "in the clear" description of the plant design type. For example, the design type C-REFRIGERATION is a commercial plant which apparently uses large amounts of ammonia for refrigeration. In the first deliverable, there were 40 design types, but no graphics illustrations or "default plant design" floor plans.

J.2.3.2 Chemical Descriptions. The Chemical Mixtures table (C_MIX) specifies the components of a definable mixture of chemicals. The mixture could represent a process stream, a binary chemical warfare mixture, or a thickened chemical agent. Each mixture identified by a Chemical Identification (CID) number has 1 to *n* components (the NUSSE model, used for chemical downwind hazard prediction, uses a maximum of five components). Each of these components is a pure chemical agent (Chem Agent) which can be defined as making up a specified mass fraction of the mixture and having a solubility coefficient in the mixture. In the first deliverable, there were 305 records in the C_MIX table, almost all of which identified "pure" chemicals.

The Chemical Properties (C_PROPS) table specifies the chemical and physical properties (other than volatility) for each pure chemical identified as a Chem Agent in the C_MIX table. A Volatility table (C_VOLATL) provides the vapor pressure at specified temperatures for chemicals which do not have Antoine vapor pressure coefficients defined. The vapor pressure may be given in mm of mercury (mm-Hg), Pascals, or Torrs (for data entry convenience only; one Torr is the same as one mm-Hg), indicated by a one-character Units entry. There is a remarks field to note where chemical reference textbooks differ on vapor pressure. For the first deliverable, 42 selected chemicals had physical properties data included; only enough data to serve as a representative sample was included in the Volatility table since the hazard prediction modelers stated they were not presently using that information.

The Toxicity table (C_TOXIC) specifies effective dose and probit slope for various routes of attack (respiratory, skin (vapor), skin (liquid), eye, and oral) for each agent (Chem Agent) in the C_PROPS tables. The doses given may be median effect, one percent (threshold) effect, no effect, and/or lowest recorded effective dose for lethality or incapacitation. A remarks block allows comments on the often widely varying estimates of these effects. In the first deliverable toxicity data was provided for only 42 selected chemicals.

J.2.3.3 Chemical Synonyms. The Chemical Name Synonyms (C_NAMES) table specifies almost every identified common name and reference number for each chemical in the C_PROPS table. Given any common name for a chemical (to include, in many cases, foreign

names and variant spellings), this table can be used to look up the name (usually a Chemical Abstracts Service Registry Number) used in the database for a chemical. Alternatively, the common foreign names for a chemical can be "looked up" to facilitate communications between emergency responders.

J.2.4 The BIO Alias.

The 11 BIO subject area tables (Table J-8) describe possible biological agent research and development, production, or storage facilities. The concept for the BIO tables was different than the concept for the NUCLEAR and CHEM tables. Nuclear reactors are large and generally fixed in place (shipboard reactors being an obvious exception). They require a long time to construct and can be fairly well characterized by design type and size. While chemical facilities could be very small "basement laboratories," in order for them to be militarily effective or produce a significant downwind hazard, they must be large. Such large facilities are generally fixed in place, requiring a long time to construct. While they are, in practice, difficult to characterize meaningfully by design type, conceptually each facility could have a building layout computerized.

Biological facilities, on the other hand, can have extremely dangerous downwind collateral effects areas even if they are very small "basement laboratories." They often require a smaller physical plant than is required by chemical laboratories and are far less obvious than nuclear reactors. Even large, militarily significant biological warfare agent production facilities can be physically small in comparison to the, somewhat similar, vaccine production or brewing industries. Because they can be small, biological agent facilities can be moved and could appear almost anywhere with very little lead time or associated "signature" (intelligence indicators). The project team, in coordination with DNA, concluded that, while chemical and nuclear plants can and should be characterized by location, it would be unprofitable to develop a database with location as the key field for biological agent facilities.

The biological database tables are prefixed with B_.

J.2.4.1 Biological Facility Information. The major link between biological tables is the biological pathogen (agent) name. The primary biological table is B_PROP, which contains the properties for biological agents. While it is reasonable to expect that, in a nuclear or chemical emergency, authorities would first locate the source facility and then identify the potential hazard(s), it is expected that the first indication of a biological hazard would be the identification of a pathogen. Although the structure of the tables allows for developing information about a potential biological facility (B_ONSITE, B_FAC, and B_LOCAT), the project team believes the most probable scenario will be a case wherein the tables contain no meaningful information. For this reason a "default" facility description (B_DEFULT) was developed for each type of release from an "onsite" pathogen release. The default facility descriptions would be for very generic agent releases, e.g., release from a research and development facility, release from a (slightly larger) seed stock facility, release from a "large" production facility or release from a storage bunker. Only a few representative default facility descriptions were developed.

Downwind hazard modeling information, equivalent to that found in the nuclear and chemical tables, is included in the B_PATH1 and B_PATH2 tables.

J.2.4.2 Symptomology. Unlike the release from a nuclear or chemical facility, for which real-time detectors are readily available for population warning and evacuation before serious exposure, a biological agent release may not even be detected until symptoms appear hours or days after the release. For this reason the biological database includes disease-specific information (not included in the nuclear and chemical databases) which may be valuable for planning an emergency medical response. This information is included in the B_SYMPT, B_IMPACT, and B_PROTEC tables, a set of tables which do not have equivalents in the chemical and nuclear tables.

J.2.5 The AGENCY Alias.

There are two agency subject area tables (Table J-9). Sixteen fields provide essential information on agencies. Because there may be multiple telephone (both voice and FAX)

numbers for each agency, the four fields for phone numbers are kept in a separate table linked to the agency table by the Agency Identification Number.

These tables, together with the Country tables (Tables J-5 and J-6), provide all essential information on agencies with responsibilities for nuclear, biological, and/or chemical downwind hazard prediction, modeling, and emergency response.

At the time of publication of this report, there was no separate formal report for printing agency data.

The tables in the AGENCY database are prefixed with A_.

J.2.6 The EXPERTS Alias.

The 10 tables of the subject matter Experts database (Table J-10) are designed to describe all of the important attributes of a person. Five of the tables give specific details as to the person's background and suitability as an expert. Two tables deal with contacts and meetings with the expert and the remaining three tables provide personal details.

This data was collected manually and entered manually. Subject matter Expert tables are prefixed with X_.

J.2.7 Complementary Efforts.

A single table (Table J-11) provides information on complementary efforts identified during the construction of this database (see Volume I, Section 7, Complementary Efforts).

J.3 SCRIPTS.

A large portion of the database was populated with data from digital sources. The Toxic Release Inventory (TRI) was the major source of chemical data, but this data was not necessarily in a

form that could be used without some manipulation. To facilitate the importation of TRI data, three scripts were written to prepare the source material for inclusion in the database.

J.3.1 The LAT_LONG Script.

The purpose of this script (Table J-12) was to manipulate the latitude and longitude fields from the TRI data into a form usable in the HPAC structure.

The TRI database contained latitude and longitude data that was concatenated into the format of DDMMSS for latitude and DDDMMSS for longitude. Since the TRI did not use leading zeros for the degrees, there were two possible cases for the latitude and three possible cases for the longitude. The code had to reflect these possibilities; hence, the nested *if . . . then . . . else* clauses in the code.

J.3.2 The NAME_PH Script.

The purpose of this script (Table J-13) is to separate the name and phone numbers into two fields.

The TRI tracked a point of contact in a single field for the POC name and phone number. A "/" was used as a delimiter between the two pieces of data. The script searches for the "/" and breaks the field into two pieces at that point.

J.3.3 The MAX_AMNT Script.

The purpose of this script (Table J-14) is to take the average of the facility production range as found in the TRI and place that value in the HPAC database.

The TRI has a field for estimated production from a plant that is given as a text range (i.e., 250 to 2,500 lbs.). The text in the range is converted into numbers of kilograms, then the maximum

and minimum amounts are placed into fields that were added to the original table. Once the data has been manipulated, the necessary fields are exported to the Paradox table, C_PRDC.DB.

J.4 FORMS.

The form is the primary mechanism for displaying data in Paradox. The user interface permits viewing of the underlying HPAC data. The interface also contains the ObjectPAL code to permit searching and editing of the data.

J.4.1 The MASTER Form.

The MASTER form is the focal point of the entire database. Selecting one of the pushbuttons in the five subject boxes calls the associated forms for viewing the data (Figure J-1). Figure J-2 shows the relationships of the different objects on the Master form. The source code is found in Table J-15.

J.4.2 The NUCLEAR Forms.

Four views of the Nuclear data are available. The first two, POWER FACILITIES and POWER FACILITIES (BY LOCATION), deal with power generating facilities. The first form provides detailed data for each individual reactor while the second form sorts the reactors by country. The RESEARCH FACILITIES form provides detailed information for the world's research reactors. The FUEL CYCLE FACILITIES provides detailed information for the world's fuel cycle facilities.

J.4.2.1 The Nuclear Facilities Filter (N_F_QRY) Form. The Nuclear Facilities Filter (N_F_QRY) Form (Figure J-3) is used as a filter to narrow the focus of the Nuclear Power Reactor Edit (N_ED) Form. The user is given the option of choosing plant status, the reactor design type, and/or model. The user can choose a location parameter by picking either the country or the latitude/longitude of the area of interest. If the user selects latitude/longitude,

there is also an option for area size. The lat/long area box defines the number of degrees north/south and east/west of the center point that will be used for the query.

Once the parameters have been selected, the user can initiate the query with the "Run Query" button.

Figure J-4 shows the relationship of all of the objects attached to the form. Object trees are described in the Paradox documentation. Each object (e.g., box, button, text) on the form is assigned a name and number by the system in the format "#name1" (where the pound sign (#) indicates that the name is a system assigned name) and end numbers are assigned sequentially as objects are added to the form. For example, the main box of the Nuclear_Facilities_Filter form is named #Page2 since it represents an entire page (computer screen) and was the second object defined during the creation process (the overall form being the first object). This object could have been renamed by the form designer (e.g., it might be renamed "MainBox") for clarity. Assigning names to objects uses system resources and was used only for clarity. Table J-16 contains the ObjectPAL code for each object of the form.

J.4.2.2 The Nuclear Power Reactor Edit (N_ED) Form. The Nuclear Power Reactor Edit (N_ED) Form is a two-page form that contains the data for a single nuclear power reactor (Figures J-5 and J-6). The object tree for N_ED is shown in Figures J-7 through J-9. Figure J-7 documents the form as a two-page form and Figures J-8 and J-9 correspond to the screen pages depicted in Figures J-5 and J-6, respectively. (This convention is also used for other two-part forms which are described in this appendix.) The data model used is shown in Figure J-10. Table J-17 shows the ObjectPAL code attached to the N_ED form.

Navigating between records is accomplished by any of three ways. For example, the user may perform a search on many of the fields. Clicking on the search icon from the Paradox interface or using ^Z from the keyboard opens the search dialog box. Type in the string to search for in the appropriate box. In Paradox the wild card double period (..) represents a string of characters and the *at* symbol (@) represents a single unknown character.

The second way to navigate is to use the Paradox cursor keys. There are six keys: First Record, Previous Record Set, Previous Record, Next Record, Next Record Set, and Last Record. The user can determine which button is which by placing the cursor over the button of interest and reading the message line at the bottom of the screen. The Previous and Next buttons move one record at a time. Previous Record Set and Next Record Set move 10 records at a time. First Record moves to the very first record in the current group (the group size depends on the choices made at the N_F_QRY form). The Last Record button goes to the last record in the group selected.

The third way to navigate the N_ED form is to use the cursor buttons on the form itself. The six buttons there are named: Move to First Record, Move to Previous Record Group, Move to Previous Record, Move to Next Record, Move to Next Record Group, and Move to Last Record. These buttons do the same things as the Paradox buttons with one exception: instead of moving 10 records at a time, the Group buttons move 20 or five percent of the records at a time, whichever is greater.

The Add Record button has not been implemented at this time.

The Delete Record button will delete a record from the N_FACIL table. A copy of the FID will be saved to the EDIT table for archival purposes.

To go from one page to another, the user clicks on the Page Down or Page Up button.

Most of the fields on N_ED can be edited. This is accomplished by double clicking the left mouse button on the field of interest. This places the form in edit mode so that changes can be made. When the focus moves to another field, the change is posted to the query table N_FAC_Q and to the EDIT table in the EDIT alias. A dialog box is opened so that the user making the changes can enter a name and a reason for the change. This information is also passed to the EDIT table. When the user exits the form, the changes are copied from the EDIT table to the N_FAC table to make the changes permanent.

J.4.2.3 The Nuclear Research Reactor Edit (NRE_ED) Form. The Nuclear Research Reactor Edit (NRE_ED) Form is a two-page form that contains the data for a single nuclear research reactor (Figures J-11 and J-12). The multi-part object tree for NRE_ED is shown in Figures J-13 through J-15. The data model used is shown in Figure J-16. Table J-18 shows the ObjectPAL code attached to the NRE_ED form.

The functionality of the form is the same as for the N_ED form. Refer to the description of the N_ED form for an explanation of how to navigate or edit fields.

J.4.2.4 The Nuclear Fuel Cycle Edit (NFC_ED) Form. The Nuclear Fuel Cycle Edit (NFC_ED) Form is a one-page form that contains the data for a single nuclear fuel cycle facility (Figure J-17). The object tree for NFC_ED is shown in Figure J-18. The data model used is shown in Figure J-19. Table J-19 shows the ObjectPAL code attached to the NFC_ED form.

The functionality of the form is the same as for the N_ED form. Refer to the description of the N_ED form for an explanation of how to navigate or edit fields.

J.4.2.5 The Check Location & ID (CHEK_LID) Form. The Check Location & ID (CHEK_LID) Form is a one-page form displaying nuclear power reactor data. CHEK_LID takes a different approach to displaying the data from N_ED. Rather than focusing on the facility, CHEK_LID focuses on the location. The reactors are organized by country, then by location within country, followed by a brief description of the facilities at the reactor site.

The form contains three main data areas (see Figure J-20). In the upper left of the screen is a block containing the country name. The table below the country block is the location table. The user may navigate through the location table by using the tab key or the arrow keys. As the user moves from one location to another, the final table on the screen will change. This is the Facility table. The user may use the mouse to move the program focus to this table, and then use tab and arrow keys to navigate this table as well.

Figure J-21 diagrams the relationship of the many objects on the form. Figure J-22 illustrates the data model used for the form. The ObjectPAL code is in Table J-20.

J.4.3 The Chemical Forms.

The chemical data is presented in three forms: C_FAC, CHEM_PRD, and LOC_DET. These forms organize the chemical industry data obtained from the Toxic Release Inventory and other sources.

J.4.3.1 The Chemical Facility (C_FAC) Form. The Chemical Facility (C_FAC) Form provides information about chemical facilities on a two-page form (Figures J-23 and J-24). The first page provides general facility information while the second provides production information. Figures J-25 through J-27 detail the object relationships of the form and Figure J-28 shows the data model for the form. The ObjectPAL code is listed in Table J-21.

J.4.3.2 The Facilities with Chemical (CHEM_FAC) Form. The Chemical Facility Query (C_F_QRY) is a small dialog style form that allows the user to select a chemical and then view the facilities that produce that chemical (see Figure J-29). When the user pushes the "OK" button, the query is run using the text string as the query parameter. Also, since C_F_QRY uses standard character strings, the Paradox wild cards can provide an effective means of defining a query. For example, requesting all facilities that produce ". . . ETHYL . . ." will provide 10,546 hits to the database with compounds like 1-(CHLOROMETHYL)-4-NITROBENZENE, ETHYL BENZENE, ETHYLENE GLYCOL, and TRICHLOROETHYLENE to name a few. C_F_QRY feeds directly to CHEM_FAC to display the query results (see Figure J-31).

The object trees for both forms are found in Figures J-30 and J-32, respectively. The ObjectPAL code is listed in Tables J-22 and J-23. CHEM_FAC uses only the single table CHEM_FAC.DB created by C_F_QRY, so there is no data model for this form.

J.4.3.3 The Chemicals Produced (C_PRD) Form. The Chemicals Produced (C_PRD) Form provides details of what chemicals are produced at a given plant (Figure J-33). Figure

J-34 details the object tree and Figure J-35 shows the data model used. The ObjectPAL code is listed in Table J-24.

J.4.4 The Biological Form.

The Biological data does not have any true facilities associated with it due to the nature of the industry at this time. For that reason, the data is organized around the pathogens and facilities are indicated by standard defaults. The BIO forms are an 11-page form set (Figures J-34 through J-44) that describe the biological data. The control panel in the upper right corner of the screen allows movement from page to page as well as a "Close" button. The "Go to Page" buttons will move the user directly to the page in question. The current page's button is hidden. The object tree is illustrated in Figure J-45 and the data model is shown in J-46. The ObjectPAL code is listed in Table J-25.

J.4.5 The AGENCY Form.

The agency data is organized by the agency name. The basic information needed to contact the agency is provided on the form (Figure J-47). Because the phone data table displays only two lines of phone numbers at a time, it may be necessary for the user to check for more numbers by using the arrow keys to scroll up or down once the focus is on the table. The object tree is displayed in Figure J-48 and the data model used is shown in Figure J-49. A listing of the ObjectPAL code is shown in Table J-26.

J.4.6 The EXPERTS Form.

The EXPERTS Forms (Figures J-50 through J-52) provide the details about a person considered to be an expert in one of the scientific disciplines important to the HPAC project. This data is arranged on three pages. Navigating is done from the control panel that is in the upper right-hand corner of the screen. The Object tree for the form is illustrated in Figure J-53 and the data model used is shown in Figure J-54. The ObjectPAL code is listed in Table J-27.

J.5 REPORTS.

Paradox has a very easy-to-use report generator that the user can access to address specific needs as they arise. The user can organize the data in any way that facilitates understanding. A number of reports were created during the development of the HPAC database to verify the accuracy of the data as it was acquired and to provide hard copy reports. These reports are still stored in the appropriate alias' but they have not been described in detail since they were for limited use.

J.6 TRANSLATION OF IAEA DATA.

J.6.1 Background.

Most of the data that was used for the nuclear databases was obtained from the IAEA in Vienna, Austria. After making contact with appropriate officials at the IAEA, the project team leader visited the IAEA to obtain the necessary data.

The three databases that were particularly needed were: the PRIS, the NFCIS, and the Research Reactor database.

Once the IAEA data was assimilated into the database structures that were designed to fit the KBS needs, data obtained from other sources was integrated.

J.6.2 Power Reactor Information System.

The PRIS data was obtained on a pair of 3½" diskettes. Each diskette had a self-extracting compressed file, PRIS.EXE and PRIS1.EXE. These files were decompressed onto the hard drive into a temporary subdirectory. PRIS.EXE was comprised of the following files: LATLONG.DAT, CHAR.XLS, and REACTOR.XLS. The PRIS1.EXE was comprised of: OUTPR.XLS and PRODPR.XLS.

J.6.2.1 File Formats for PRIS Data. The files CHAR.XLS, REACTOR.XLS, OUTPR.XLS, and PRODPR.XLS were all spreadsheet files created using Microsoft Excel. The file LATLONG.DAT was a fixed field ASCII file.

J.6.2.2 Analysis of the Raw PRIS Data. The organization of the PRIS files was designed by the IAEA. The first step was to check the files to see if the data corresponded to what was expected.

J.6.2.3 Translating the Original Tables to Paradox for Windows. There were two data formats to deal with in this case. The .XLS files were imported directly into Paradox by way of the built-in import capabilities of the File|Utilities|Import menu. The new .DB files had the same name as the .XLS files.

Translating the LATLONG.DAT file was accomplished almost the same way. Prior to importing into Paradox, the file needed to be prepared for the importing process. All spaces were removed from the file and replaced with commas to create a comma delimited file. This was then imported to Paradox using the same File|Utilities|Import menu. Since some of the records had fields with data missing, those records had data that was offset from the proper position in the record. The necessary adjustment was easily accomplished from the Paradox application.

The next time that this data needs to be translated, it may be quicker to import the file as a fixed-length field file. This method requires that all of the data be in the proper position prior to importing. The task can be performed with any good text editor.

J.6.2.4 Reorganization of the Tables. Once the files are in Paradox, they were reorganized to begin the process of merging this new data with the already existing data structures. At this time unnecessary fields were deleted and field lengths set to their proper sizes. Conflicts due to incompatible field lengths were addressed at this time. The most important action to take at this time was to create a new ID system for the data. The multiple key fields used to uniquely identify the different facilities were not adequate for the project as envisioned. Each facility was

given a unique and arbitrary numeric ID number by using REACTOR.DB as the master table and using a script written in Object PAL to assign ID numbers.

J.6.2.5 Queries. The first query was used to associate the ID numbers assigned to the REACTOR.DB table to the other related tables. The next set of queries was used to recombine the data into forms that more closely match the table structures that were already in use.

J.6.2.6 Restructuring. The tables that resulted from the previous queries were missing fields. By using the Table|Restructure menu, the new tables were modified to match the existing structures in the database.

J.6.2.7 Append/Update. The new data was used to add new records to the table, resulting in updating of current records by using the File|Utilities|Add menu. This menu is used to specify the source and target tables and to define how the two are supposed to interact.

J.6.3 Nuclear Fuel Cycle Facilities.

The NFCIS data arrived on a single 3½" diskette. It contained a single compressed file called NULA.ZIP. This was decompressed using the appropriate utility.

J.6.3.1 The Original File and Its Format. NULA.ZIP decompressed into a single file named NULA.DBF. NULA.DBF was the underlying table used to drive a GIS (Geographical Information System) application. Because of this, there was a lot of extra data attached to each record that was used by the GIS to link each record to a particular location. Since this data was used with a GIS, each record has a lot of extraneous fields which were removed. The resulting file was named NULA.DB.

J.6.3.2 Translating to Paradox. NULA.DBF was a dBASE file that was easily converted to a Paradox format by simply copying the file with the File|Utilities|Copy menu. NULA.DBF was copied to NULA1.DB. NULA1.DB became the working table.

J.6.3.3 Reorganizing the NULA1.DB Table. A copy of NULA1.DB was made and the restructure menu was opened. All extraneous fields were deleted from the structure.

J.6.3.4 Queries. The first query that was run was to attach a unique, data independent ID number to each record. Next, a pair of queries was run to split the NULA1 table into two related tables.

J.6.3.5 Restructuring the Resulting Tables. The two tables were restructured to fit in with the Fuel Cycle data structure and to ensure that all necessary fields were defined and that the tables were properly keyed.

J.6.3.6 Append/Update. The new data were used to add new records to the table, updating current records by use of the File|Utilities|Add menu.

J.6.4 Nuclear Research Reactors.

The data for the research reactors was received on two 5 1/4" diskettes, which contained six .DBF files. They were: ADDR.DBF, EXPF.DBF, FUEL.DBF, TECH.DBF, GENI.DBF, AND UTIL.DBF.

J.6.4.1 The Original File and Its Format. These files were received in what was presumed to be their native dBASE format.

J.6.4.2 Analysis of the Raw Research Reactor Data. This data was received without any information about the relationship of the tables to one another or description of field contents. This situation made it difficult for the project team to determine which fields to save and which to discard. Therefore, all fields were retained.

J.6.4.3 Translating to Paradox. The team copied the files while in the Paradox for Windows application and specified that the target files be saved with the Paradox .DB extension.

J.6.4.4 Reorganizing the Research Reactor Tables. The files were combined into a single, large flat file and combined into a single table by using a query. No restructuring was required.

J.6.5 Data Content and Limitations.

J.6.5.1 Information Contained in the KBS Nuclear Power Reactor Facilities Database:

- Location: latitude, longitude, and nearest town or city
- Responsible parties: owner, operator, and supplier of the nuclear steam system and the turbine generator
- Status: reactors in operation, under construction, planned, or shut down
- Design details: reactor type and size, specific power, owner, operator; supplier of the nuclear steam supply system and of the turbine generator; gross and net output of the reactor
- Reactor core characteristics and fuel loading: chemical composition and fuel enrichment
- Operating history: dates of construction start, first criticality, connection to the grid, commercial operation, and shutdown

J.6.5.2 Nuclear Research Reactor Data:

- Research reactor names and numbers operating
- Name and address of the owner and the operator
- Administrators of the reactors
- Reactor licensing authority
- Telephone, telex, and fax numbers
- Construction, criticality, and shutdown dates
- Initial and annual operating costs
- Staff size
- Type of research performed, tests conducted, or isotopes produced
- Other reactor characteristics such as horizontal and vertical uses, maximum flux, core and excore data, core loading and fuel element description, number of loops and use, criticality data, fuel cladding, coolant, reflectors, power, and instrumentation
- Training uses

J.6.5.3 Information Not Included in the Database. The following desired information could not be gathered in sufficient detail to justify inclusion in the database.

- Stack heights were not available from any database or facility and, hence, were not included
- Safety, emergency, and protective systems as well as emergency service support (due to facility security and other sensitivities, there was insufficient information available to justify fields in the KBS)
- Legal information, such as treaty requirements, civil defense requirements, and the law of land warfare as applicable to individual facilities (since no facility specific information of this type was found, no fields were included in the KBS)
- Demographics and adjacent terrain (as noted elsewhere, obtaining demographic information is a time consuming, manpower intensive, and error filled process; since so little demographic information was actually obtained, no fields were provided in the initial nuclear KBS for this information. Terrain information, which will be available in the meteorological feeds for HPAC, was not included in the KBS)

J.7 TOXIC INVENTORY RELEASE DATA.

Chemical facilities data was extracted from the EPA's TRI database. The project team converted TRI data to a form usable in the HPAC database by extensive manipulation and renaming of data structures using tools available in the PARADOX database engine. While the TRI is available in hard copy and on-line through the National Library of Medicine, the most useful format was found to be the CD-ROM sold by the Government Printing Office because of the time saved when extracting the large amounts of data available.

The information in the TRI is submitted in accordance with SARA (Superfund Amendments and Reauthorization Act Title III (The Emergency Planning and Community Right-to-Know Act of 1986) by companies in the U.S. which produce or use selected hazardous chemicals. The TRI compiles this information for release approximately two to three years after submission; at the time of knowledge base preparation in 1993-94, the latest information was from 1990. By late 1994 information for 1992 was available on CD-ROM (August 1994 release). This section describes how data was converted from the TRI to the HPAC database in 1993-94. Data from the August 1994 TRI release was not extracted for the database.

J.7.1 Decision Rules.

Except where otherwise noted, data was based entirely on the EPA TRI Report for 1987-1990. The project team applied the following decision rules to determine what facilities would be included in the initial HPAC knowledge base:

- Special interest facilities (e.g., U.S. Army chemical weapons storage facilities) would be included irrespective of their appearance or non-appearance in the TRI.
- Facilities producing any quantity of one or more of the chemicals of interest would be included. It should be noted that the TRI contains information on how much of a chemical is on hand, not how much is produced. For example, a company which produces tons of phosgene every day but immediately consumes it in producing other chemicals would declare itself as a producer with only a small quantity (that which is in the pipes) on hand at any one time. Such a plant could easily have been modified since the TRI was produced to store the phosgene in large quantities.
- Facilities importing or possessing (but not manufacturing) a chemical of interest would be included if the quantity of the chemical on hand at any one time is great enough to be a hazard. The definition of how much would be hazardous was different for each chemical, based on the degree of toxicity. For example, any quantity of parathion greater than 45.5 kg (100 lbs) was considered large enough to be of interest, while it took at least 4,550 kg (10,000 lbs) of ammonia to be enough to be of concern.
- Any chemicals declared by a facility for the last four years would be considered as being still potentially applicable to the facility. The only exception was ammonia and hydrogen chloride, for which there was no significant change from one year to another.
- Facilities with more than one chemical of interest would be "design typed" based on the chemical with the greatest war potential. For example, a plant declaring tons of ammonia, but only hundreds of kilos of phosgene would be typed as a phosgene plant rather than as an ammonia plant because phosgene is of more interest as a potential war gas than is ammonia.

The database initially submitted contained information on all chemical facilities which met the above criteria. For follow-on efforts, a more carefully defined set of decision rules should be developed to determine what quantities of chemicals are significant and ensure that plant "design typing" is done reliably without having to have a chemical engineer make a decision for every entry.

J.7.2 Converting Information From The TRI.

J.7.2.1 Extracting the TRI. The software on the TRI CD-ROM was used to access its database. The terminology used in this section (words in all capitals, such as SELECT) conforms to the terminology used by the software on the TRI CD-ROM and, once the files are converted, it conforms to Paradox terminology. The TRI "Fielded Databases / Releases" (hereinafter called Releases) set was used to obtain latitude and longitude. Both the Releases and the TRI "Fielded Databases / Treatments" (hereinafter called the Treatments) set were used to recover information on chemicals in use at chemical facilities. By using them together, a better picture was obtained than that which was available from only one data set.

The approach developed by the project team was to SELECT information based on REPORTING YEAR. All releases for the prior year (e.g., 1989) were captured in one SET and all releases for the most recent year (e.g., 1990) in another SET. Each SET was selected in the afternoon and then exported overnight, since it often took hours to EXPORT the information from the TRI. The USER SELECTed sets were exported in dBASE format BY DEFAULT ORDER. The following fields were captured (note that the abbreviation of the field name is used in the SELECT process):

FIELD	dBASE FIELD NAME
TRI FACILITY ID (TRIN)	TRI_FACILI
REPORTING YEAR (YR)	REPORTING_
CAS REGISTRY NUMBER (RN)	CASRN (Note: Changed to CAS_REGI in 1994)
SUBSTANCE NAME (NAME)	SUBSTANCE_
MAXIMUM AMOUNT ONSITE (MAX)	MAXIMUM_AM
SUBSTANCE/PROCESSING USES (PUSE)	SUBSTANCE/

Note: In the 1992 TRI, the SUBSTANCE/PROCESSING USES field appeared as three separate fields:

MANUFACTURING	MANUFACTUR
PROCESSING	PROCESSING
OTHER USE	OTHER_USE

The above fields were recovered from the TRI CD-ROM in two databases (Releases and Treatments) for each year of interest. A separate query was run on the Releases table to match TRI Reporting Number with geographic information (since latitude and longitude are not reported in the Treatments table). While the TRI FACILITY ID, LATITUDE, and LONGITUDE remain the same from year to year, other data key data (e.g., points of contact, facility names, and telephone numbers) change, so only the most current information year was used for changeable information.

FIELD	dBASE FIELD NAME
TRI FACILITY ID (TRIN)	TRI_FACILI
LATITUDE (LAT)	LATITUDE
LONGITUDE (LONG)	LONGITUDE
FACILITY NAME (FNM)	FACILITY_N
FACILITY STREET ADDRESS (FAD)	FACILITY_S
FACILITY CITY (FCTY)	FACILITY_C
FACILITY COUNTY (FCO)	FACILITY_C
FACILITY STATE (FST)	FACILITY_S
FACILITY ZIP CODE (FZIP)	FACILITY_Z
PUBLIC CONTACT/PHONE (PUBC)	PUBLIC_CON

J.7.2.2 Initial Paradox File Handling. Each dBASE file was imported (copied) into a separate Paradox table where the second FACILITY_C (county) was changed by the database engine to FACILITY_C_1 and the second FACILITY_S (state) became FACILITY_S_1.

A QUERY was used to remove all entries where the CASRN (Chemical Abstracts Service Registry Number) was blank (e.g., mixtures and sludges without CASRNs which were not of interest for this project). The CASRN was moved by PARADOX TABLE RESTRUCTURE to

the second position, and both the CASRN and the TRI FACILITY ID were made into key fields. This identified every chemical declared by every facility.

For illustration purposes, consider four tables: a 1989 Releases table, a 1989 Treatments table, a 1990 Releases Table, and a 1990 Treatments table. First, the 1989 Treatments table was added to the 1989 Releases Table, then the 1990 Releases table was added, followed by adding the 1990 Treatments table. This sequence of ADDs combined the releases and treatments and displaced all of the 1989 information for which the TRI FACILITY ID and the CASRN were identical (about 95 percent of the 1989 information). By this process the combined table (the MAIN table) contained information about all chemicals declared by every reporting facility for any reason in the latest two years on the TRI CD-ROM. While most of the data from earlier years (keying on FACILITY and CASRN only) was redundant to the most current year, and was therefore replaced by the latest year's data, it was considered useful to retain the few percent of reports from earlier years.

A set of queries was used on the MAIN table to shorten the terms used in the SUBSTANCE/ PROCESSING USES field (which had been three fields in the 1992 TRI: MANUFACTURING, PROCESSING and OTHER USE) to about 20 characters. A query was then used to combine the SUBSTANCE NAME and MAXIMUM_AM fields with the SUBSTANCE/PROCESSING USES TABLE as an added field (Further Remarks). This Further Remarks field captures in one place what, why, and how much of a chemical is used. The SUBSTANCE/PROCESSING USES field (in 1992, the MANUFACTURING, PROCESSING, and OTHER USE fields) was subsequently of no use and was removed from the MAIN table by restructuring.

The HPAC relational database structure called for separate name and telephone number fields whereas the TRI combines those data elements into a single field. Therefore, new fields were added for point of contact name and telephone numbers. The single PUBLIC_CON field for name and telephone number was converted into two fields (Name and Phone) by use of a script (TABLE ____).

Note: the scripts contained in the tables may refer to temporary file names and structures.

The latitude, longitude, and address information was combined into the MAIN table by use of a query based on the TRI FACILITY ID. The project team did not attempt to determine how many different latitudes and longitudes were reported by each, supposedly unique, facility. Since, as noted elsewhere, about five percent of the latitudes and longitudes reported were clearly wrong (with transposition of latitude and longitude being the most common error), a procedure should be developed to flag different latitudes and longitudes for the same facility.

J.7.2.3 Creation of the Chemicals Produced Table. Queries were run on the MAIN table, based on the CASRN field, to create new tables (daughter tables) for each of the chemicals of interest. Each of these temporary daughter tables lists all facilities which declared a particular chemical at any time in the years of interest. While chemical plants may report producing or storing several chemicals of interest to HPAC, the project team assigned a design type to plants based on the chemical of greatest interest. The chemicals were prioritized as follows:

- Organophosphate pesticide facilities
- Carbamate pesticide facilities
- Polycyclic organochlorine pesticide facilities
- 4,6-Dinitro-o-cresol facilities
- 1,2-Dibromoethane facilities
- Methyl isocyanate facilities
- Phosgene facilities
- Hydrogen cyanide facilities
- Acrolein facilities
- Hydrazine facilities
- Commercial imine (ethyleneimine and propyleneimine) facilities
- Ammonia and hydrochloric acid facilities

Each plant was categorized by the highest priority chemical that it reported. Therefore, a pesticide plant reporting both organophosphate and carbamate pesticides would automatically be categorized as an organophosphate plant, even if it reported only a small quantity of organophosphates but a large quantity of carbamates. The project team recognized that this

prioritization scheme was misleading when classifying plants which reported only small quantities of insecticide (presumably used to control insects) but hundreds of tons of other chemicals; therefore, such plants design types were changed to the type which was most clearly representative.

To combine the tables, the lowest priority daughter table (hydrochloric acid) was keyed for TRI_FACILI only and each of the other daughter tables was ADDed to it in sequence from lowest to highest priority, each displacing in turn the lower priority chemical. The result is a temporary table (FAC-NAM) which contains the names of only those facilities which produce one or more of the chemicals of interest with the information about that facility coming from only the entry with the chemical of greatest interest.

A query was used to extract from the MAIN table all chemicals produced by all facilities in the FAC-NAM table. This table became the base for the Chemicals Produced (C_PRDC) table of the knowledge base. By using this process, the only plants represented are those which declare one of the chemicals of interest, but every chemical declared by each of those plants is reported.

Latitude, longitude, address information, and points of contact were removed from the Chemicals Produced table while additional fields were created for other information in the table. Default information was used to fill many of the new fields for which no information was available (e.g., safety systems).

A script (TABLE ____) was used to extract from the ASCII MAXIMUM_AM field numeric Maximum, Minimum, and Average quantities in kilograms. The TRI_FACILI field was renamed the FID No., the CASRN became the CID No., the SUBSTANCE_ field became the Further Information field, the MAXIMUM_AM field became the Type Construction Note and the year became the Scenario Code.

J.7.2.4 Facilities Location Table. The FAC-NAM table served as the basis for the Chemical Locations (C_LOCATE) table. The TRI_FACILI field was renamed as the FID No., the FACILITY_N field became Address 1, the FACILITY_S field became Address 2,

FACILITY_C became City, FACILITY_C_1 (County) became Region/Township, and FACILITY_Z became Postal Code/Zip Code. New fields, some with defaults, were added to provide desired information. Fields dealing with chemicals and points of contact were removed.

New fields were added for latitude and longitude data, separated into fields for degrees, minutes, and seconds. The TRI latitude and longitude (an ASCII string in the form DDDMMSS) was converted to these separate degrees, minutes, and seconds fields using a script (TABLE ____).

J.7.2.5 Facilities Administrative Information Table. The FAC-NAM table served as the basis for the Chemical Facilities (C_FACIL) table. The TRI_FACILI field was renamed as the FID No, the FACILITY_N field became FACILITY_Name, CASRN became the initial Design Type, Name was renamed as Point of Contact, Number was renamed as POC Tel Number, the Remarks field was renamed as Op History Descriptive, and fields, with defaults, were added for all other information desired. Unused information, such as latitude and longitude, was deleted.

It should be noted that, for commercial facilities, Address 1 in the Location Table is identical to the FACILITY_Name field in the Facilities Table and the Phone number in the Location Table is identical to the POC number in the Facilities Table. The "duplicate" fields are available for expansion of the database. For example, for some military and foreign facilities, Address 1 in the Location table is not the same as the FACILITY_Name. When other sources of information (e.g., the SRI Directory of Chemical Producers) were used, the telephone numbers for the plant and for the POC were not always the same.

J.7.3 Design Types.

As mentioned above, the facilities were categorized according to design type, a concept derived from the use of design types for describing nuclear reactors. The design type of nuclear power reactors could be used to hypothesize a plant layout when no detailed information on a facility is known. Unfortunately, while all boiling water nuclear reactors are conceptually similar, almost no chemical plants producing the same commodity have the same design so design types are of limited value.

Most chemicals can be produced in several different ways. For example, the nerve agent Sarin (GB) can be produced in 24 different ways, only about 10 of which are probably commercially feasible (Pittaway, 1975). Roughly the same number of possible processes applies to the production of any complex organophosphate. Phosgene can be produced in at least seven different ways. Ammonia can be produced in ways as disparate as high temperature catalytic reaction of hydrogen and nitrogen, extraction from petroleum and natural gas products, or the decomposition of manure.

Manufacturers often protect their specific production process as proprietary information. In only a few cases was it possible to determine exactly what process was being used. For these reasons, the design types in the database are very broad.

J.7.3.1 Knowledge base Design Types. To categorize chemicals of interest the project team defined chemical plants as being one of the design types shown in paragraph J.7.2.3. There could be hundreds of other design types. They were not defined because they do not produce any of the "top 50" most toxic chemicals, so were not of interest in the first deliverable of the knowledge base.

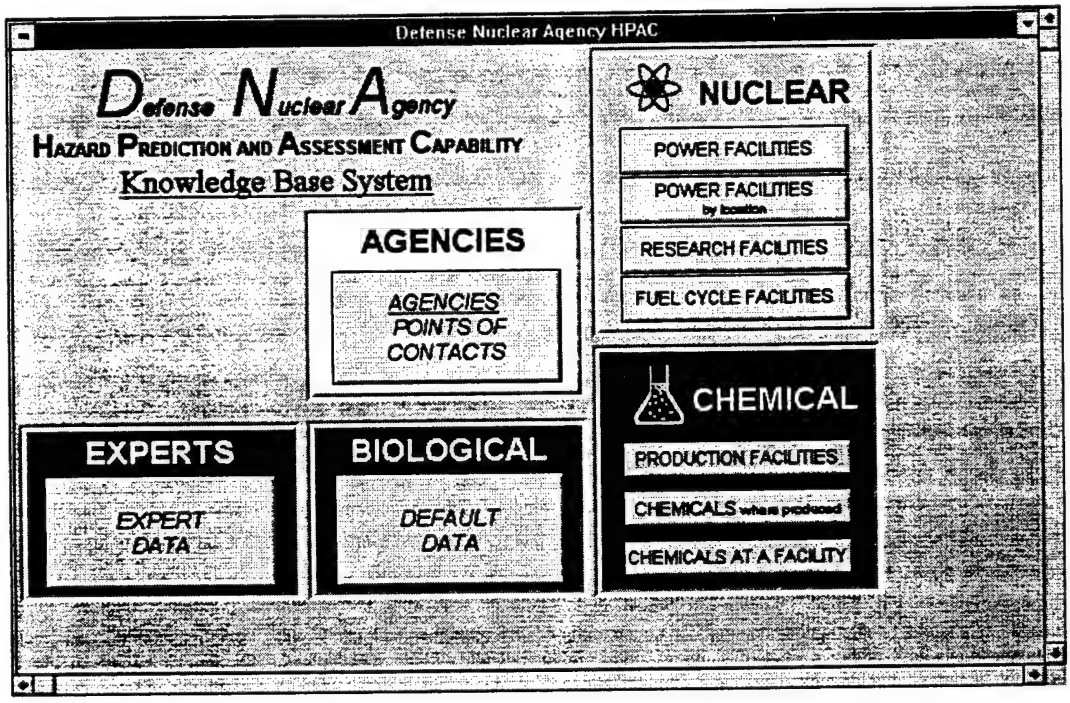


Figure J-1. Master form screen.

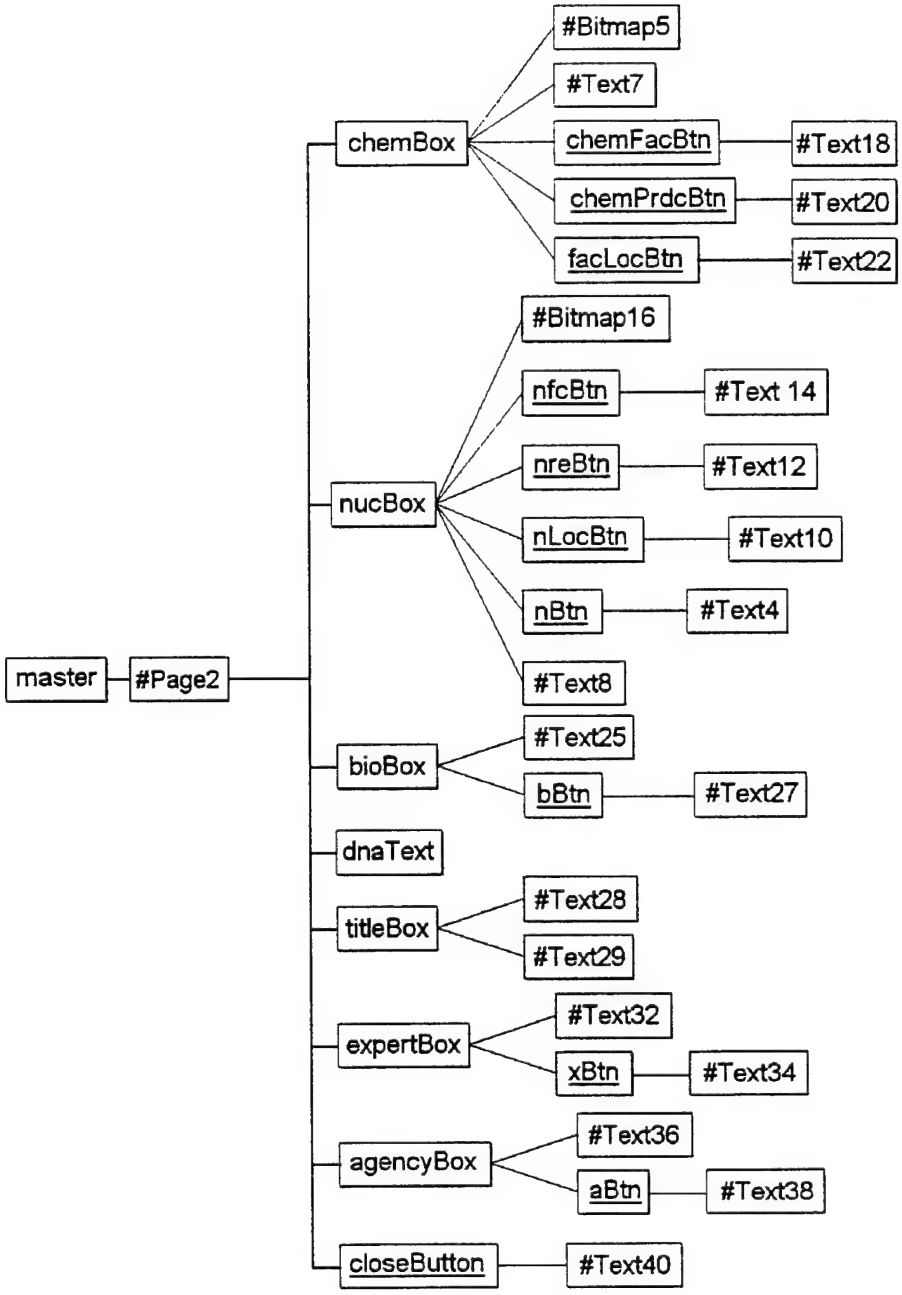


Figure J-2. Master form object tree.

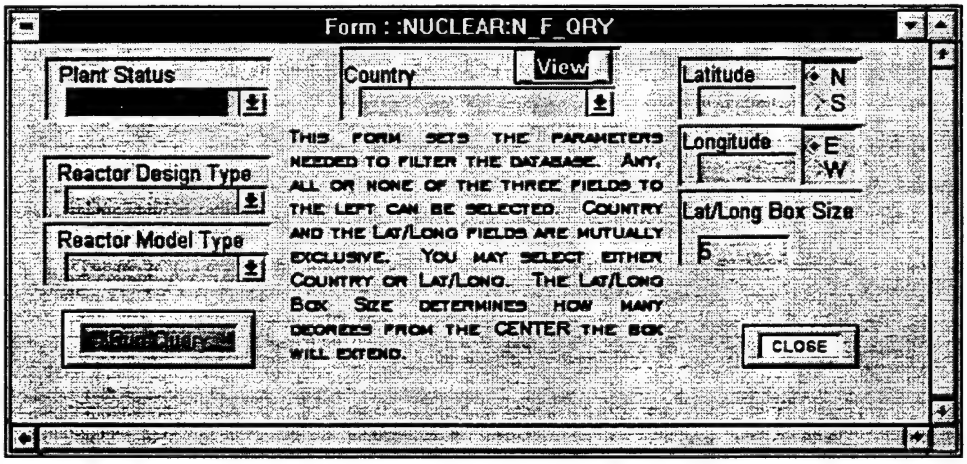


Figure J-3. Nuclear facilities filter (N_F_QRY) form screen.

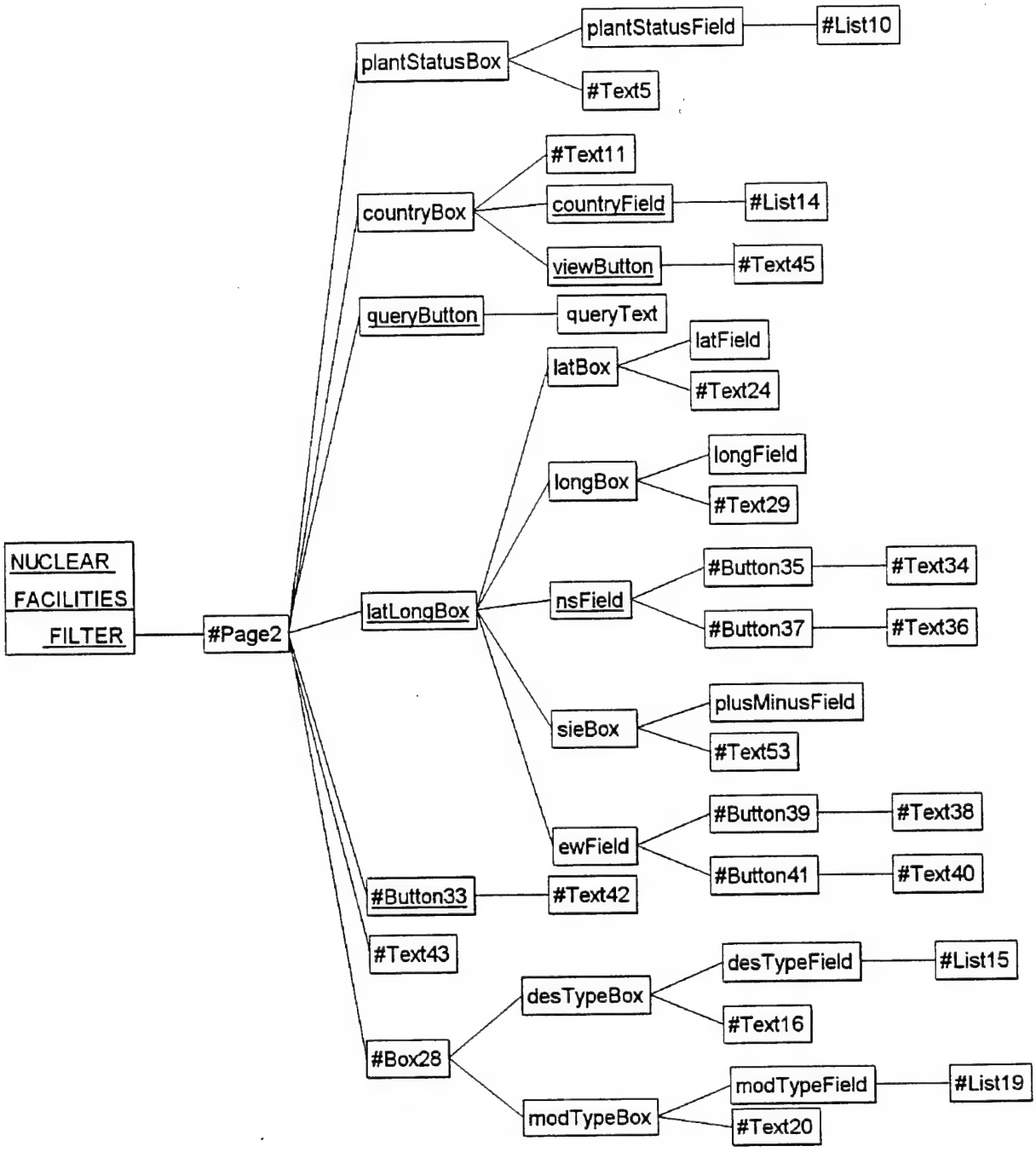


Figure J-4. Nuclear facilities filter (N_F_QRY) form object tree.

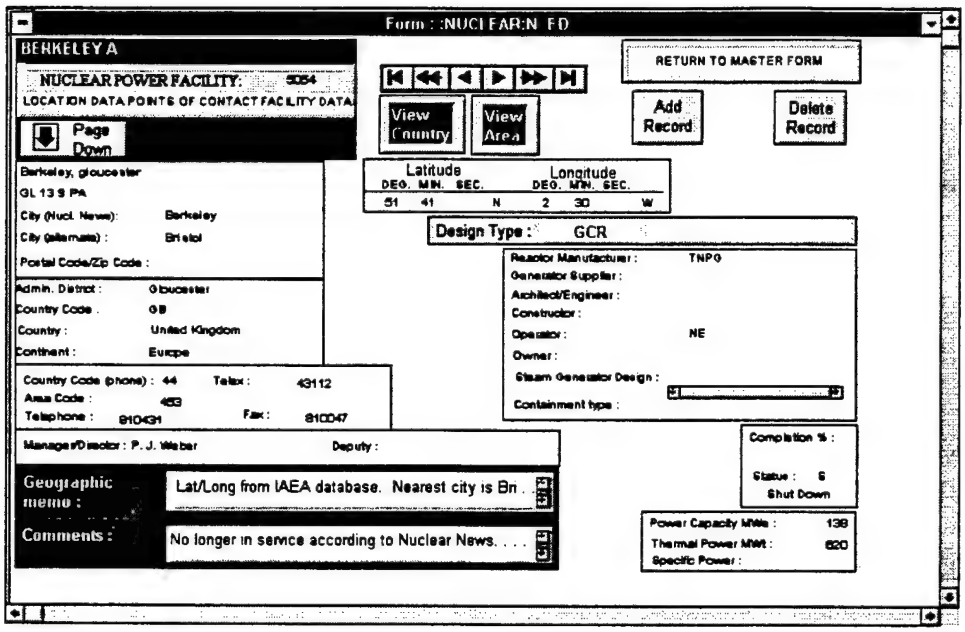


Figure J-5. Nuclear power reactor edit (N_ED) screen page 1.

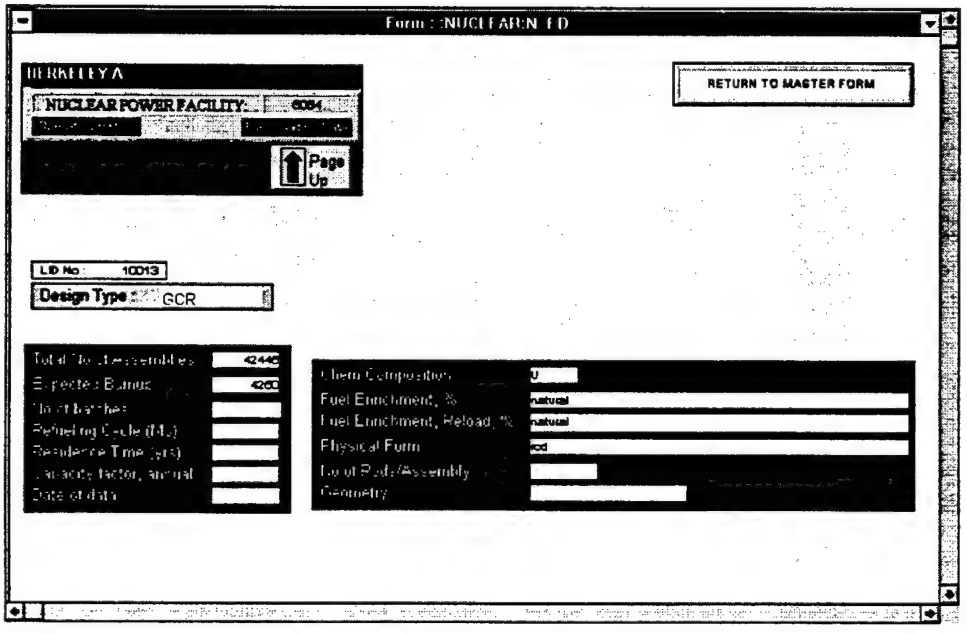
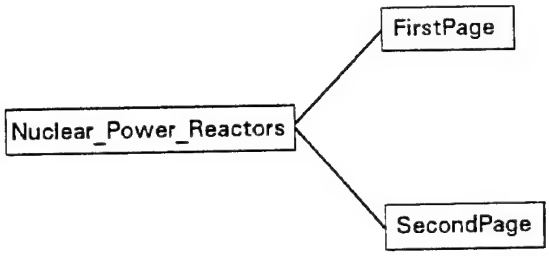


Figure J-6. Nuclear power reactor edit (N_ED) screen page 2.



FirstPage and SecondPage are displayed in Figures J-8 and J-9 respectively.

Figure J-7. Nuclear power reactor edit (N_ED) object tree.

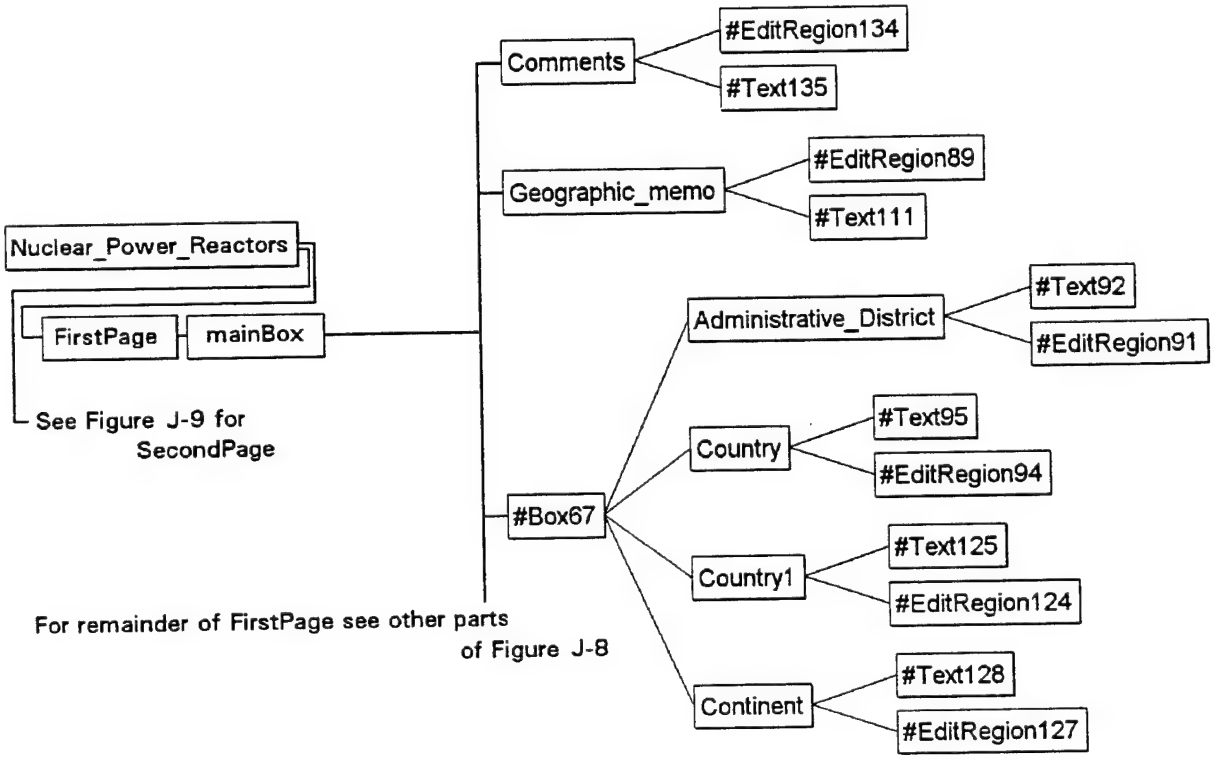
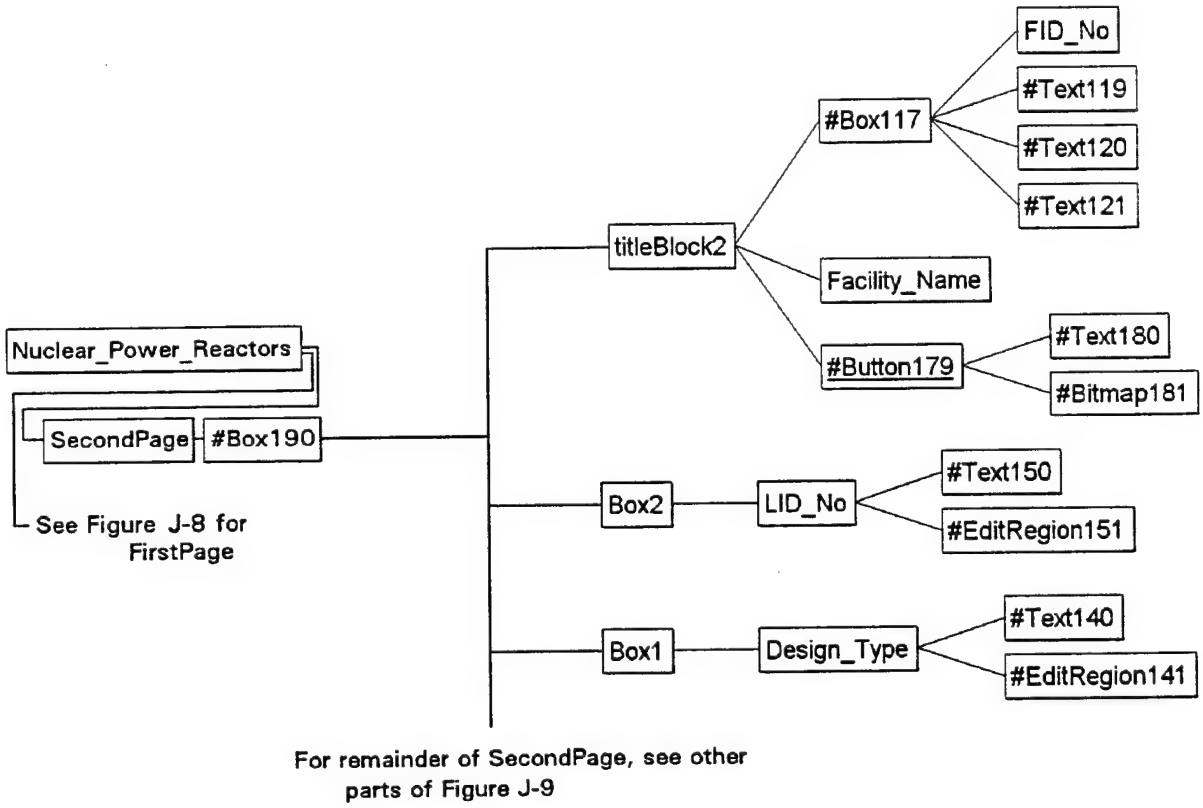
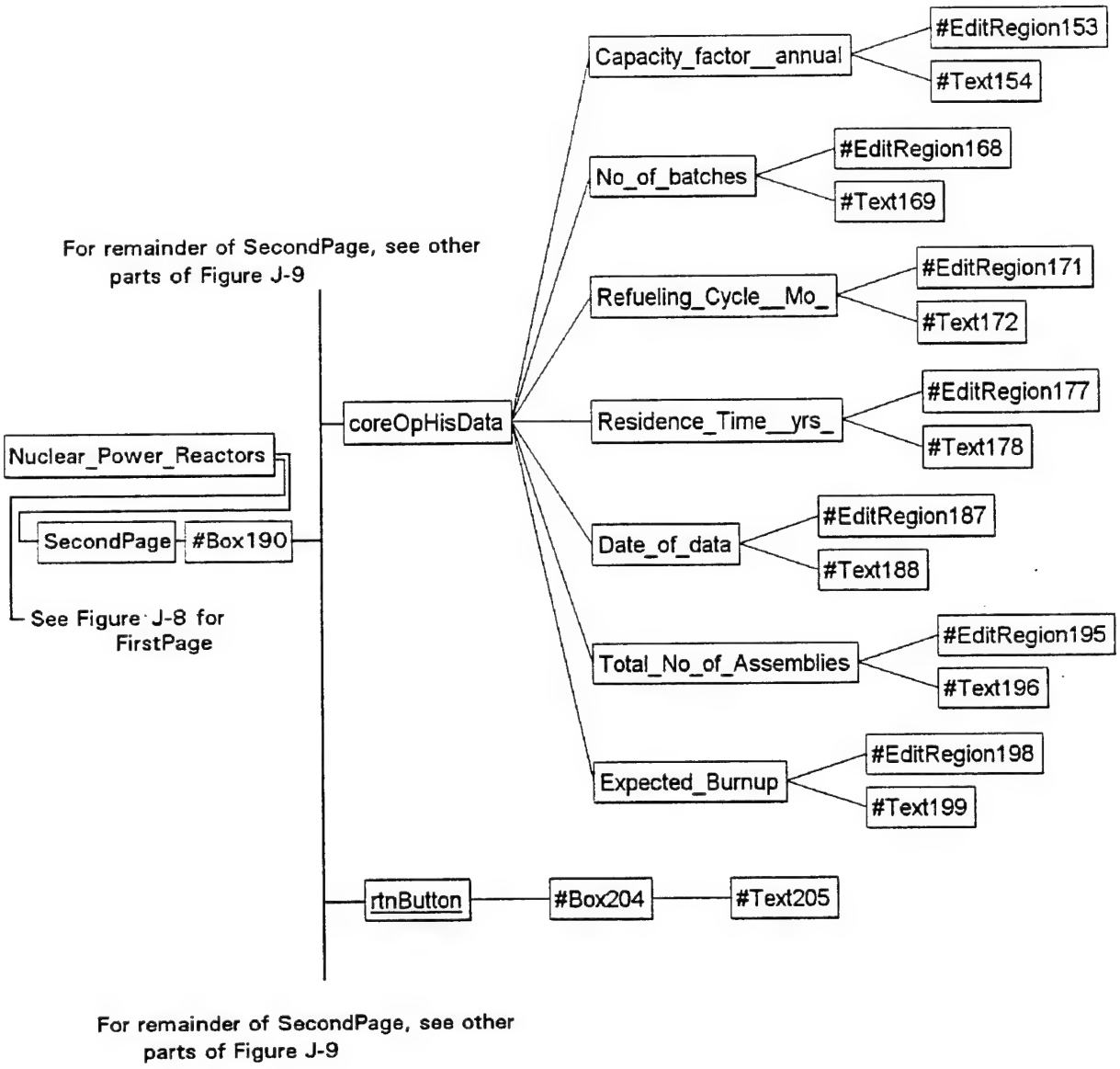


Figure J-8. Nuclear power reactor edit (N_ED) object tree page 1.



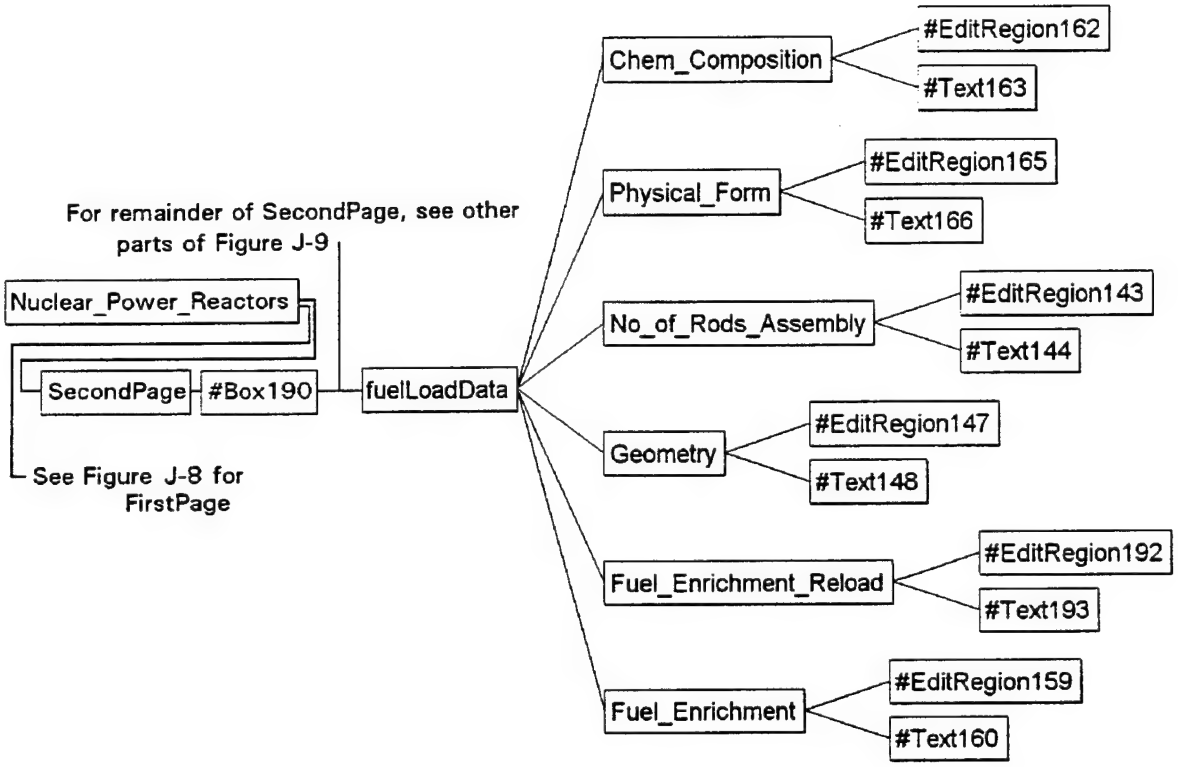
(a) First part

Figure J-9. Nuclear power reactor edit (N_ED) object tree page 2.



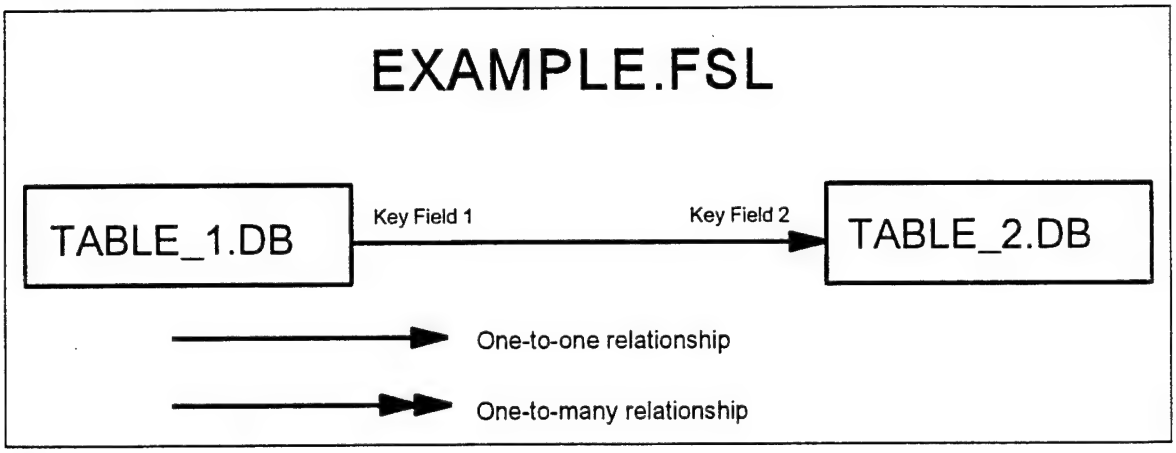
(b) Second part

Figure J-9. Nuclear power reactor edit (N_ED) object tree page 2 (Continued).

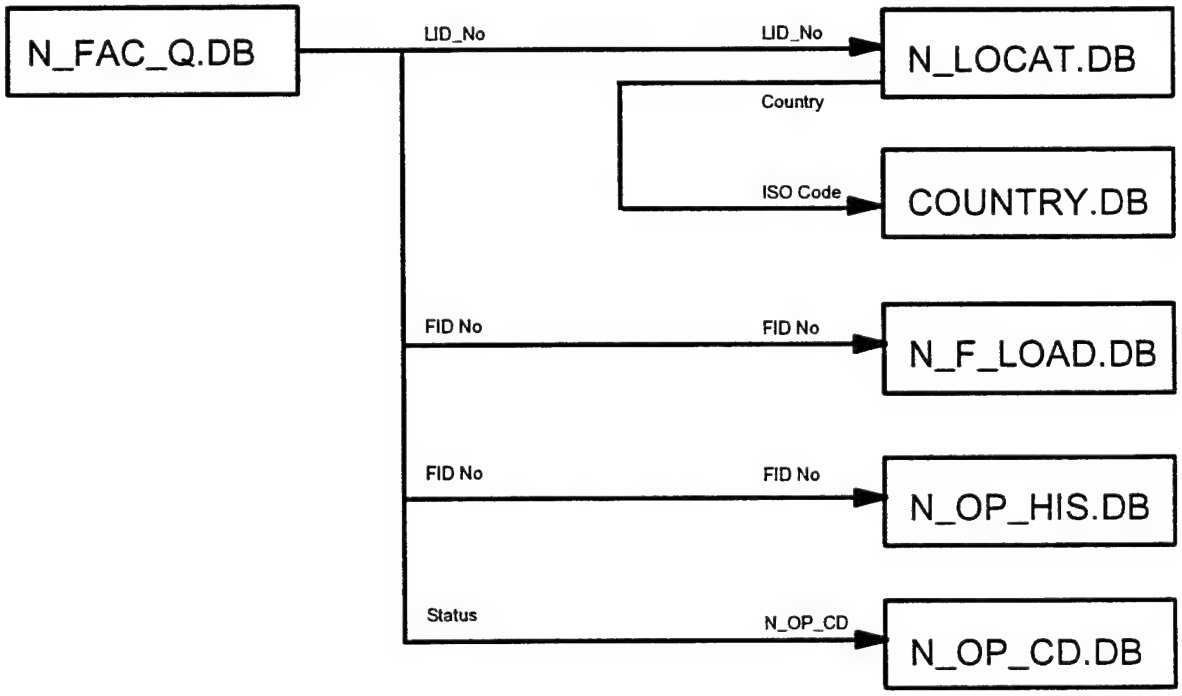


(c) Third part

Figure J-9. Nuclear power reactor edit (N_ED) object tree page 2 (Continued).



(a) Legend



(b) Model

Figure J-10. Nuclear power reactor edit (N_ED.FSL) form data model.

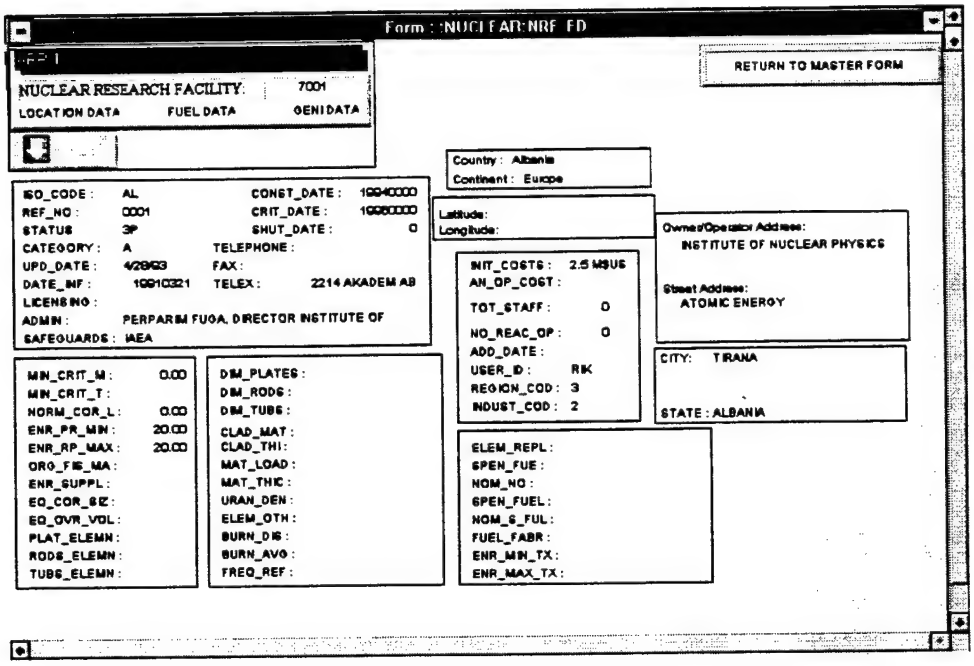


Figure J-11. Nuclear research reactor edit (NRE_ED) form screen page 1.

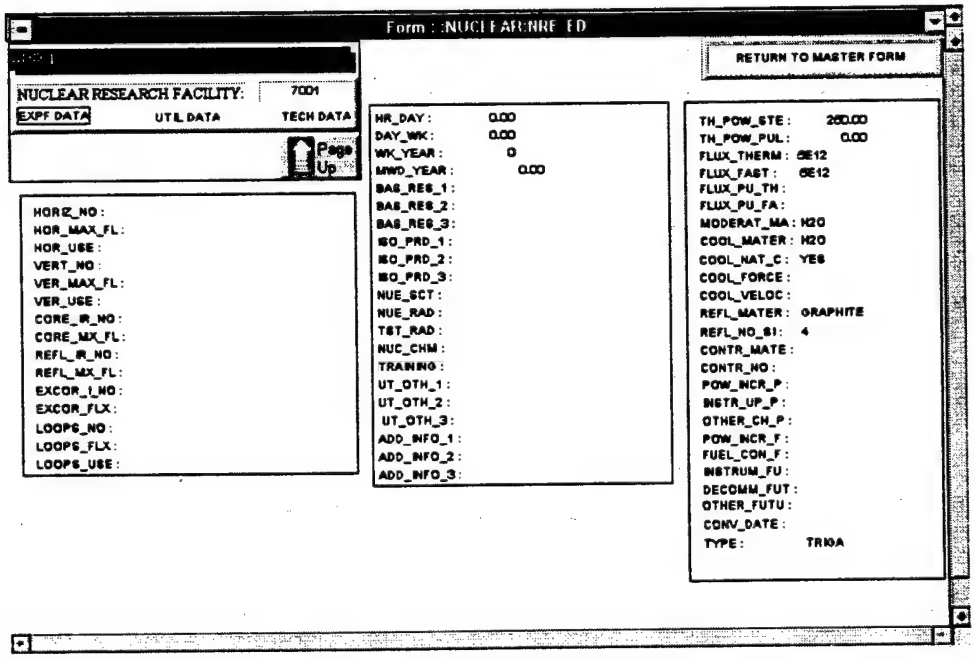


Figure J-12. Nuclear research reactor edit (NRE_ED) form screen page 2.

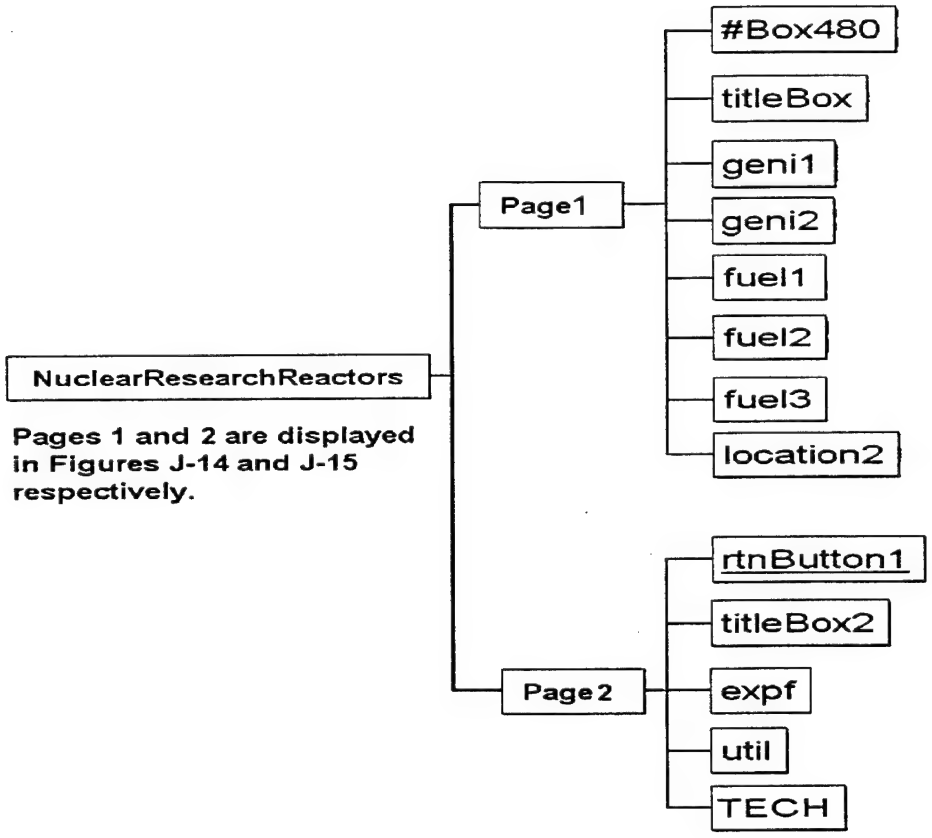
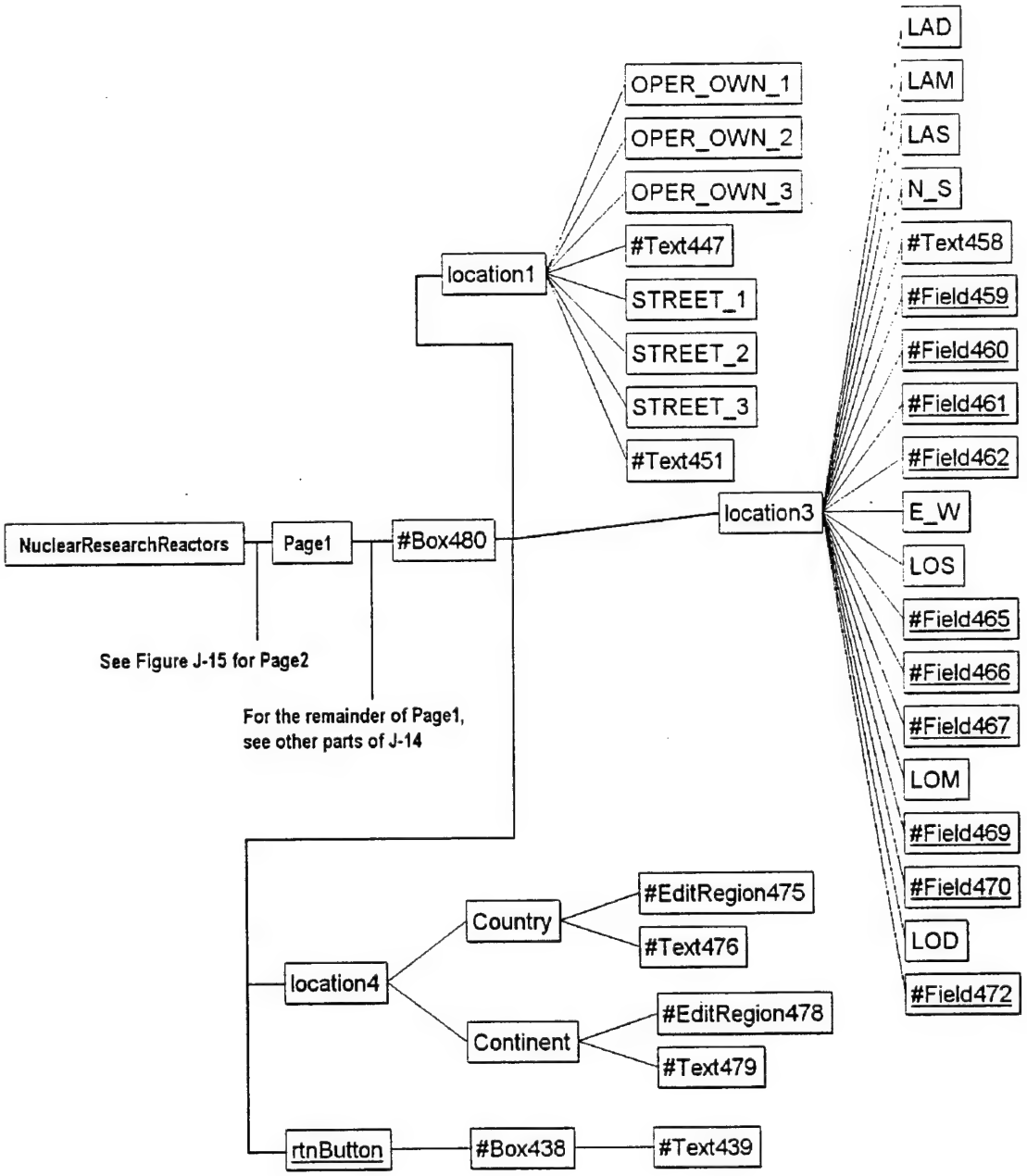
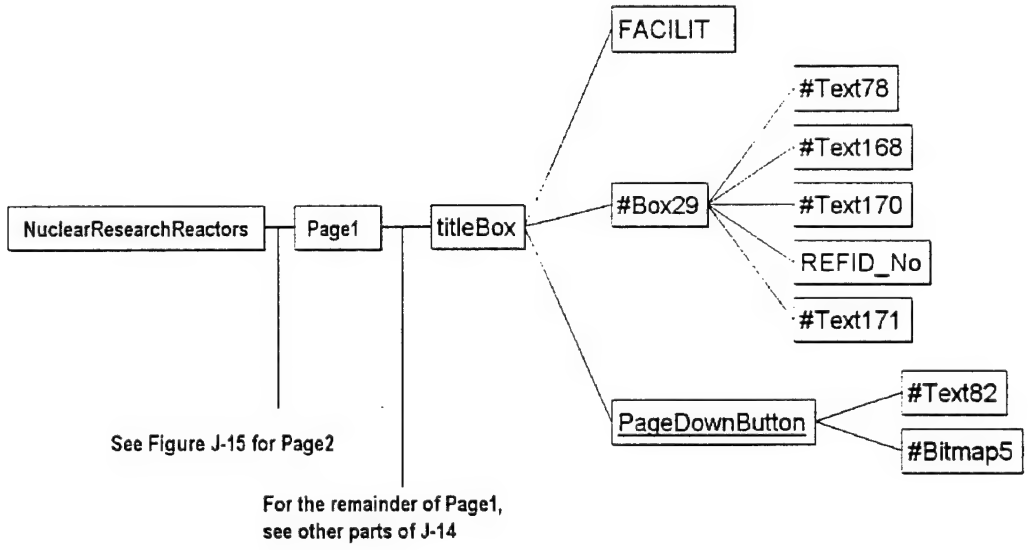


Figure J-13. Nuclear research reactor edit (NRE_ED) object tree.



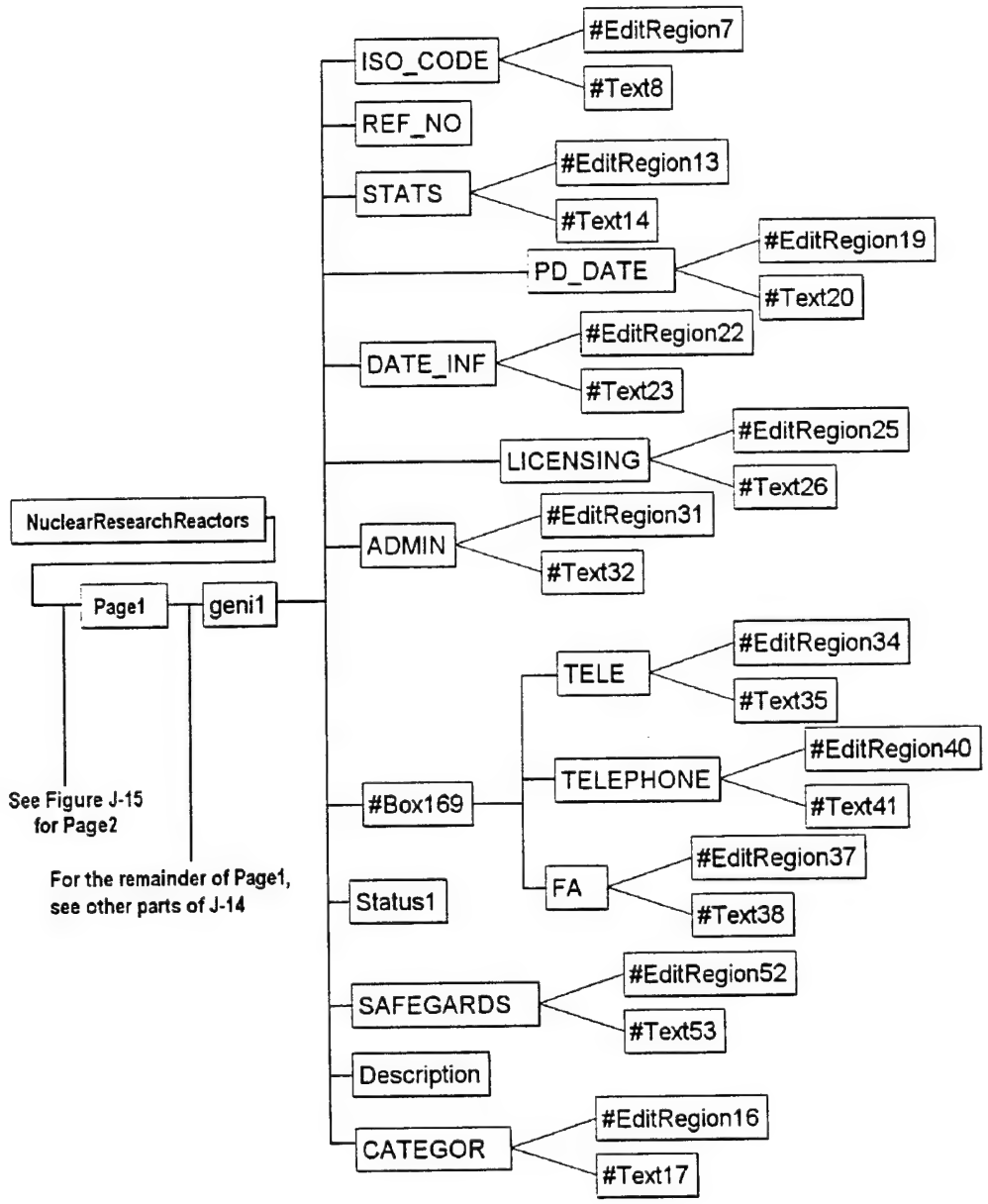
(a) First part

Figure J-14. Nuclear research reactor edit (NRE_ED) object tree page 1.



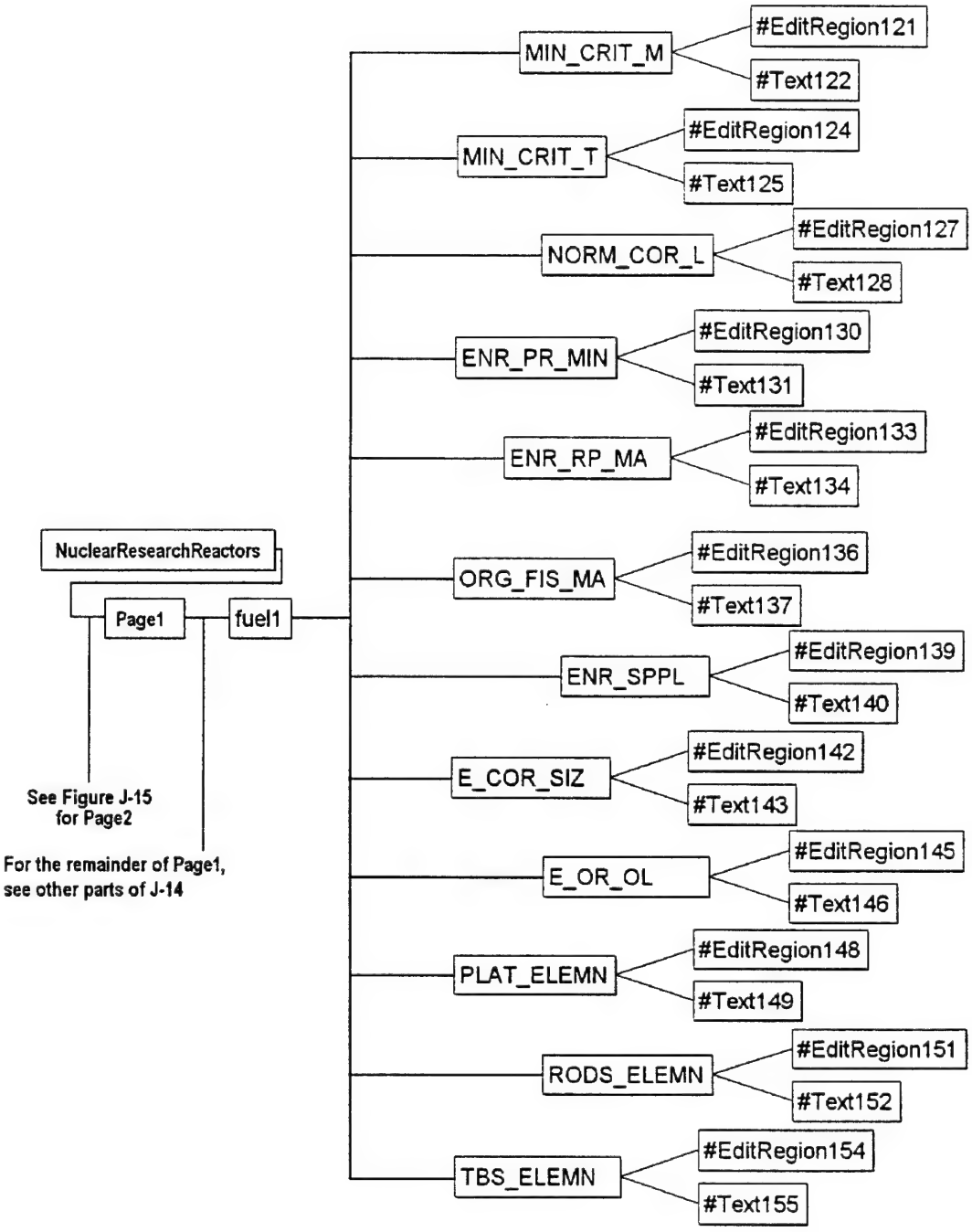
(b) Second part

Figure J-14. Nuclear research reactor edit (NRE_ED) object tree page 1 (Continued).



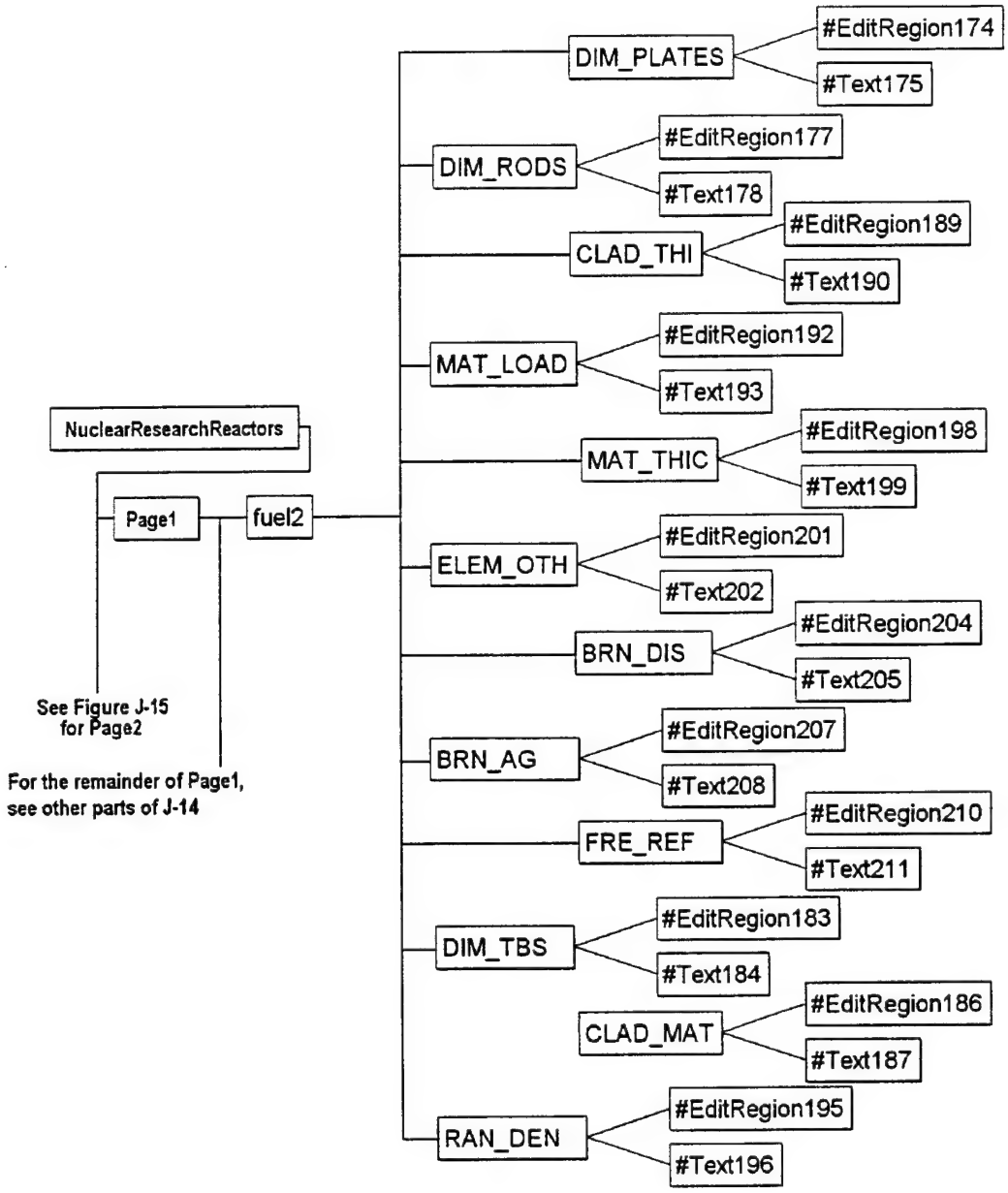
(c) Third part

Figure J-14. Nuclear research reactor edit (NRE_ED) object tree page 1 (Continued).



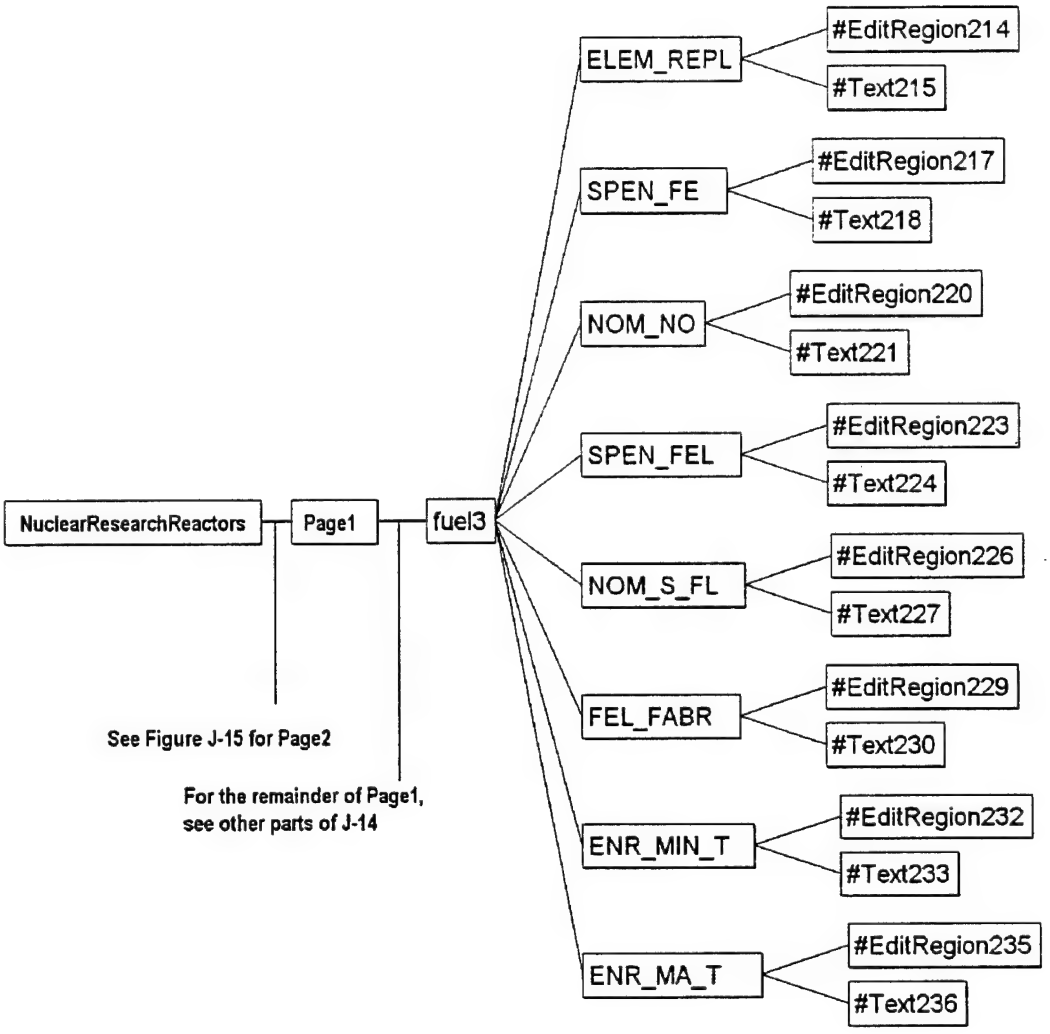
(d) Fourth part

Figure J-14. Nuclear research reactor edit (NRE_ED) object tree page 1 (Continued).



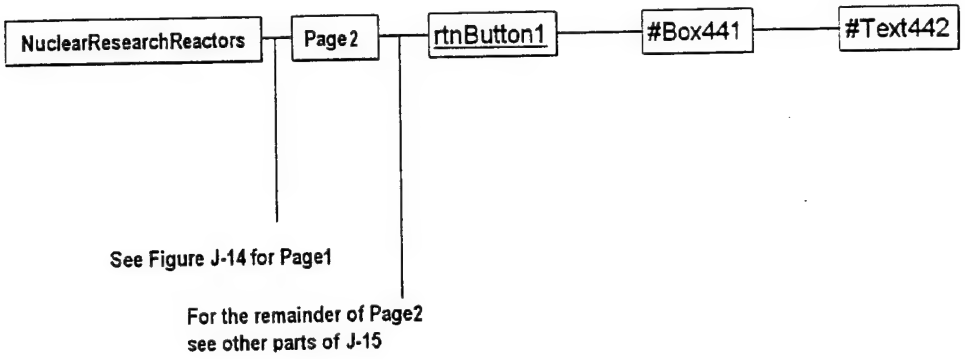
(e) Fifth part

Figure J-14. Nuclear research reactor edit (NRE_ED) object tree page 1 (Continued).



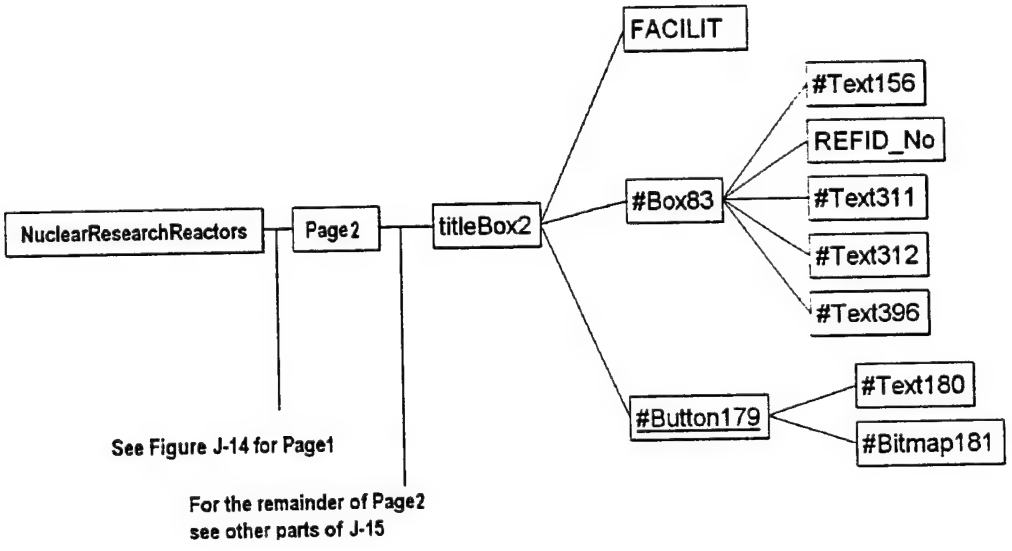
(f) Sixth part

Figure J-14. Nuclear research reactor edit (NRE_ED) object tree page 1 (Continued).



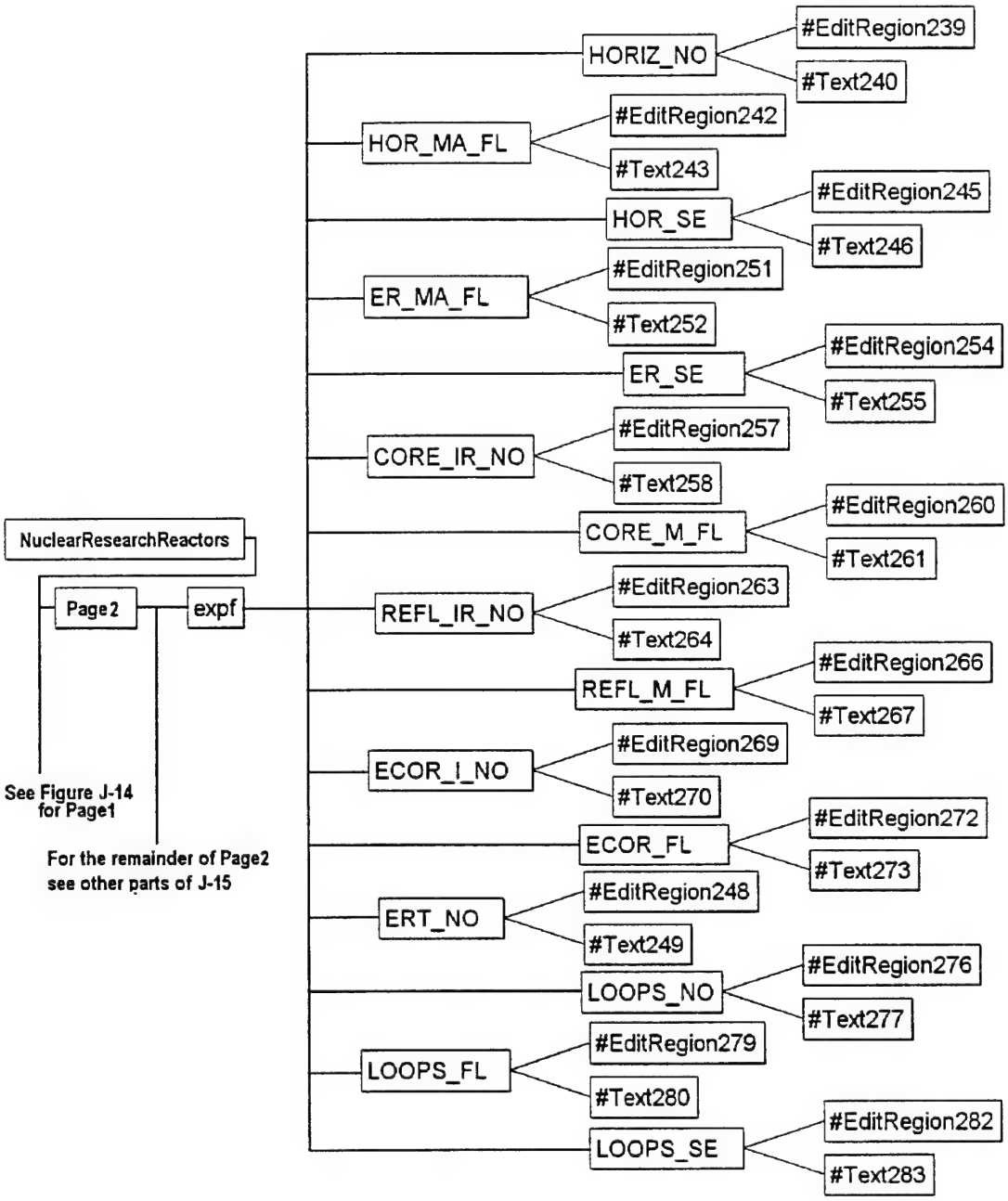
(a) First part

Figure J-15. Nuclear research reactor edit (NRE_ED) object tree page 2.



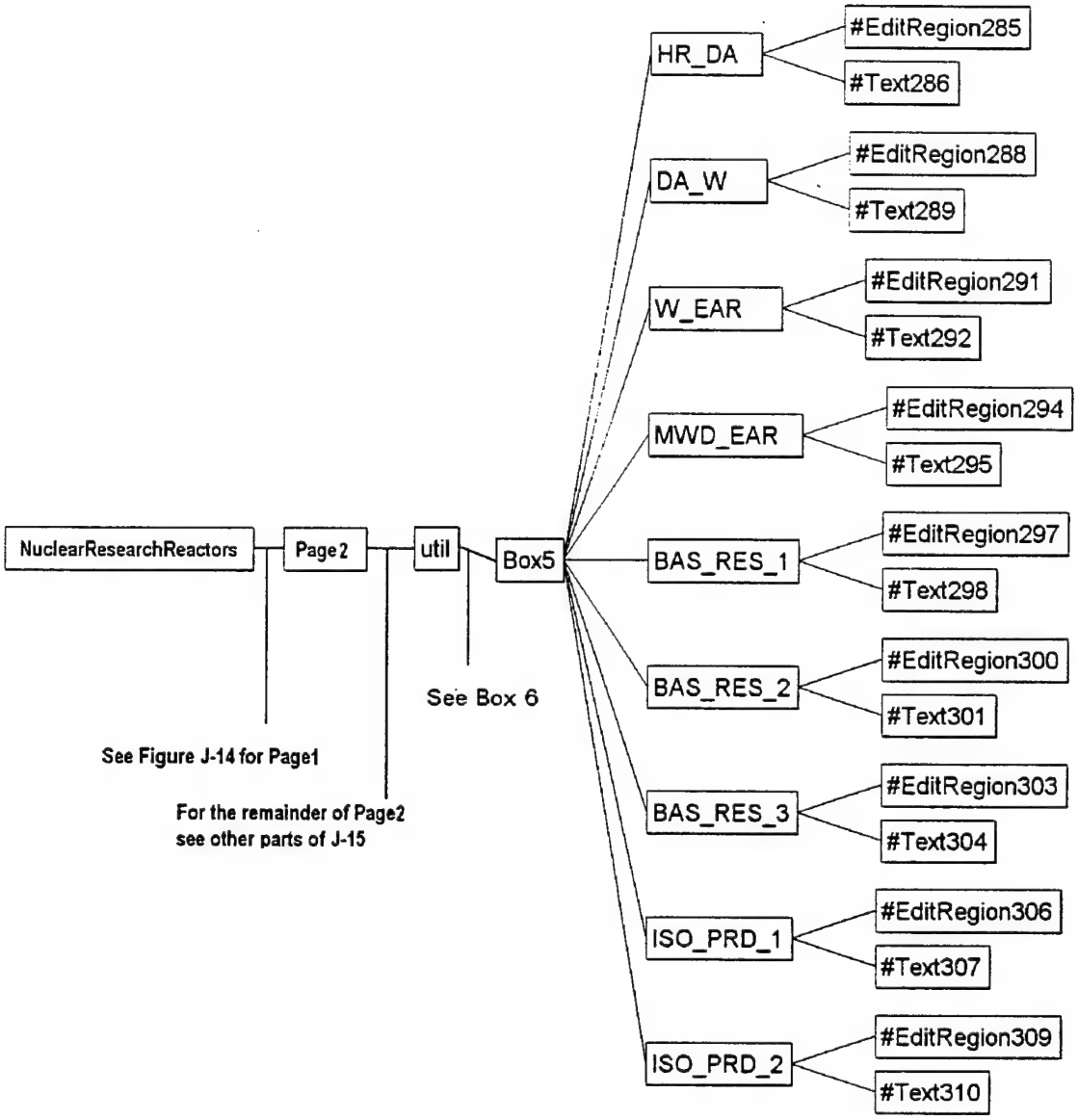
(b) Second part

Figure J-15. Nuclear research reactor edit (NRE_ED) object tree page 2 (Continued).



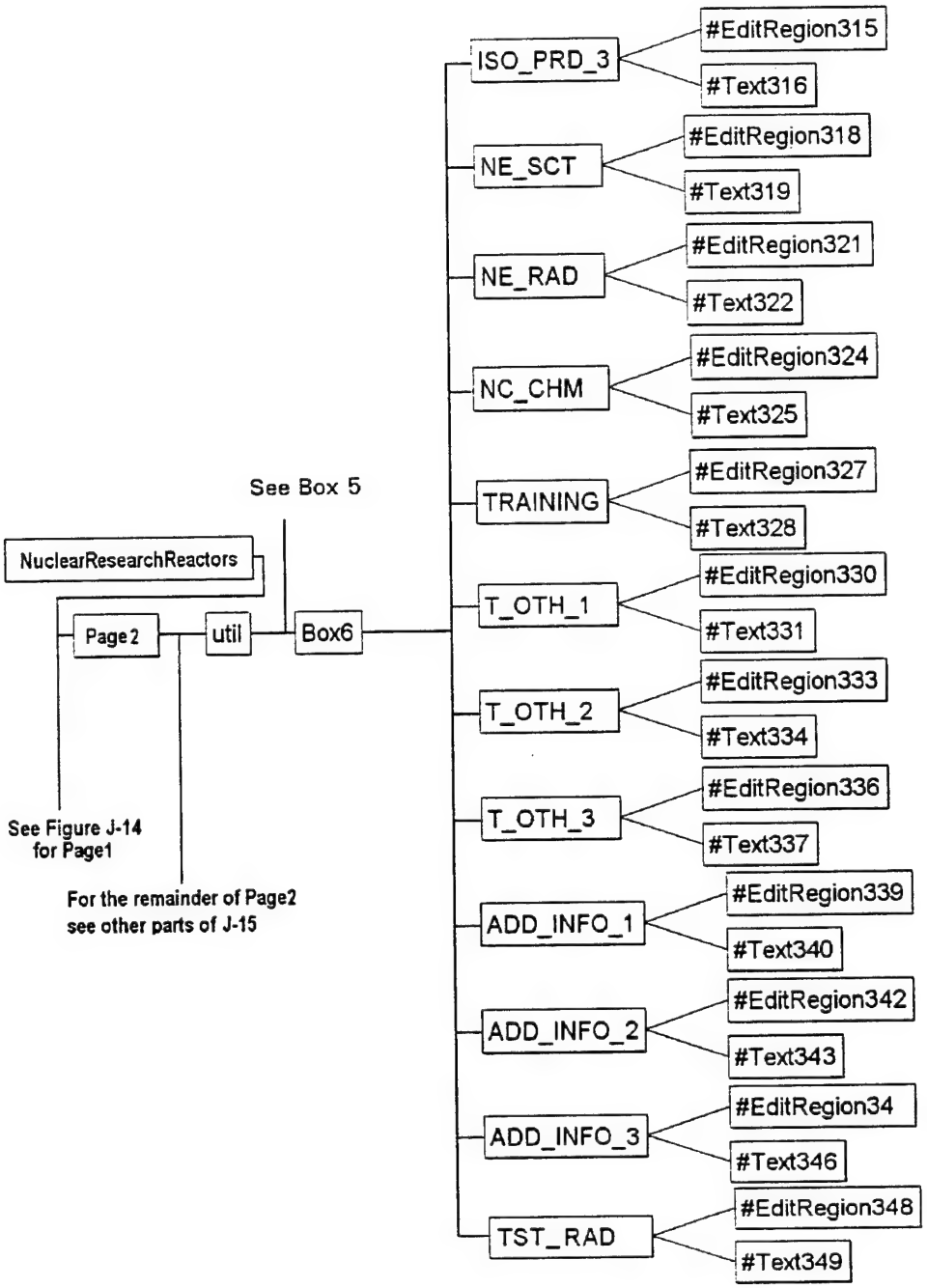
(c) Third part

Figure J-15. Nuclear research reactor edit (NRE_ED) object tree page 2 (Continued).



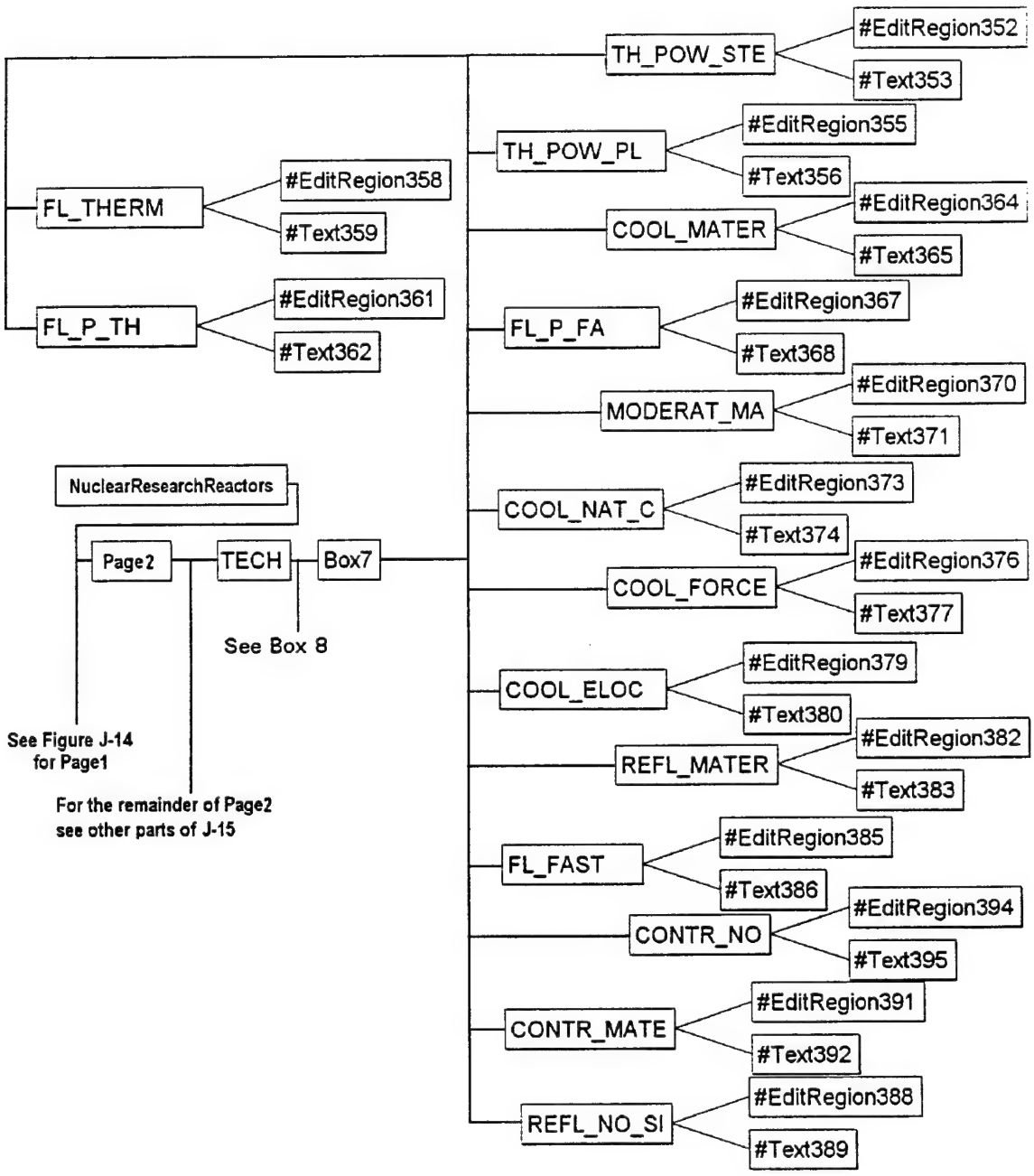
(d) Fourth part

Figure J-15. Nuclear research reactor edit (NRE_ED) object tree page 2 (Continued).



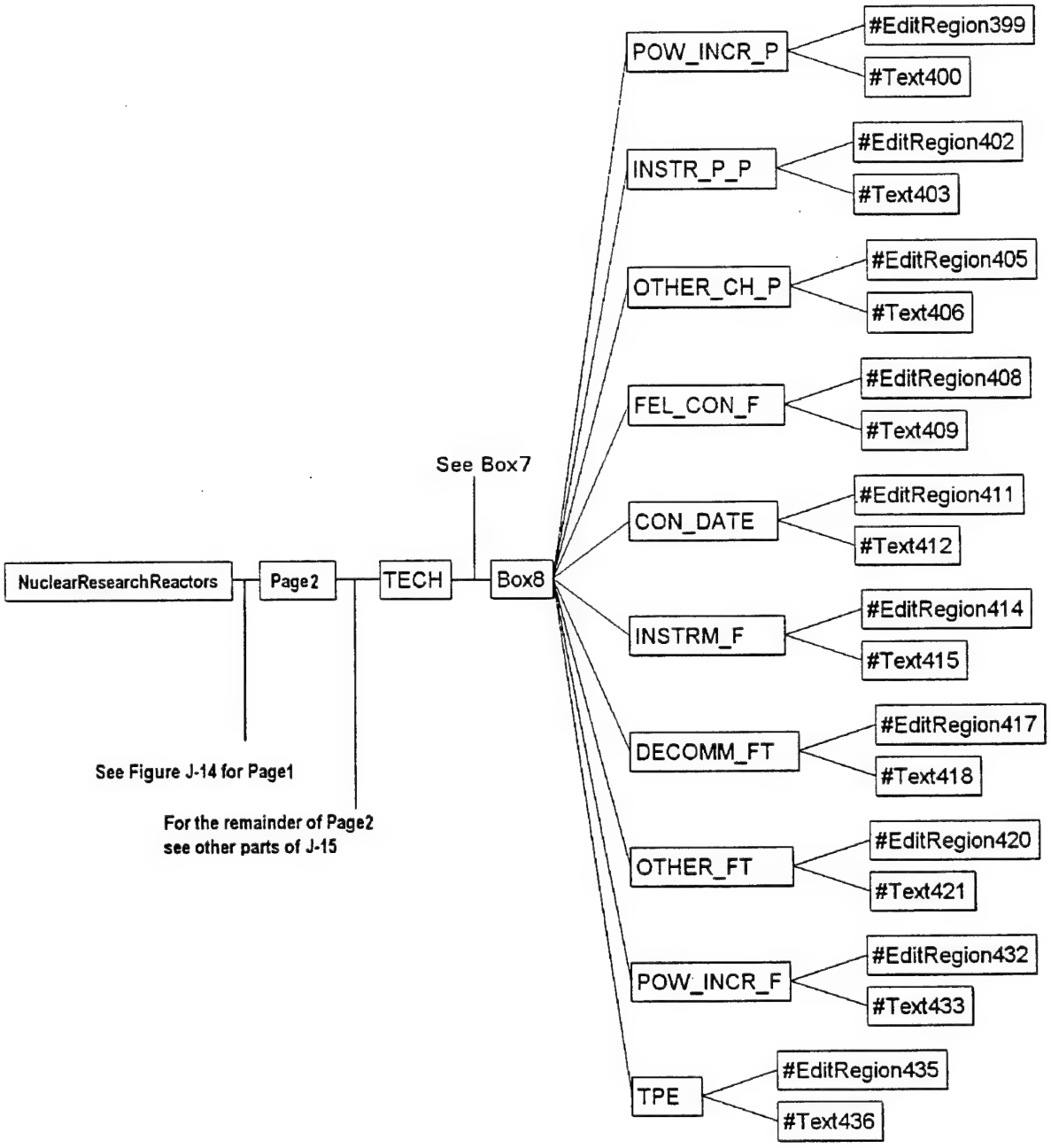
(e) Fifth part

Figure J-15. Nuclear research reactor edit (NRE_ED) object tree page 2 (Continued).



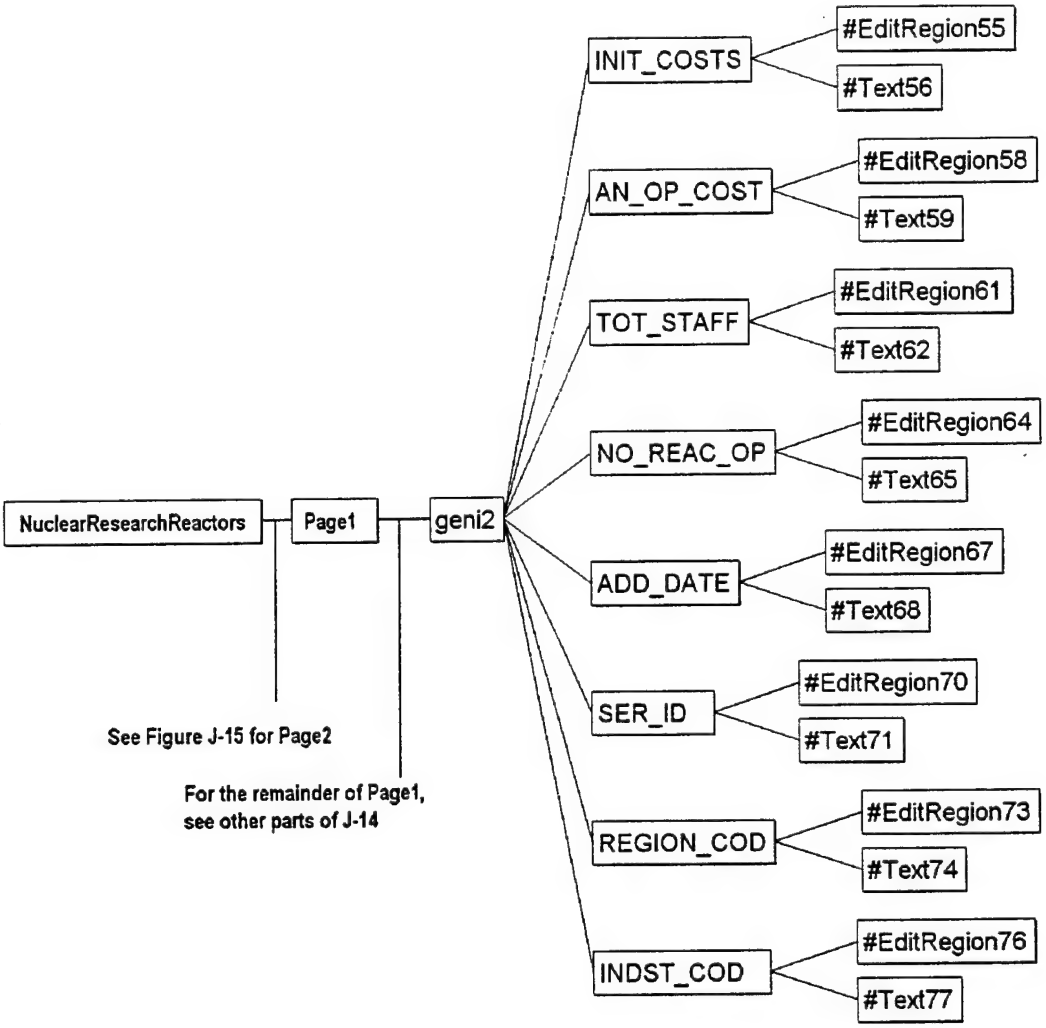
(f) Sixth part

Figure J-15. Nuclear research reactor edit (NRE_ED) object tree page 2 (Continued).



(g) Seventh part

Figure J-15. Nuclear research reactor edit (NRE_ED) object tree page 2 (Continued).



(h) Eighth part

Figure J-15. Nuclear research reactor edit (NRE_ED) object tree page 2 (Continued).

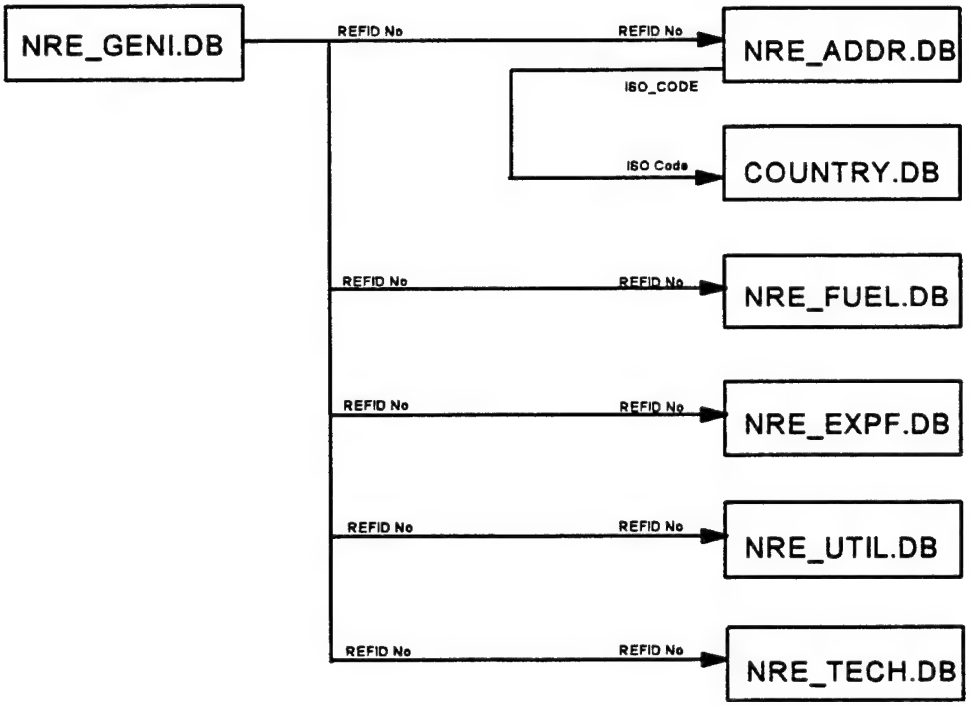


Figure J-16. Nuclear research reactor edit (NRE_ED) data model.

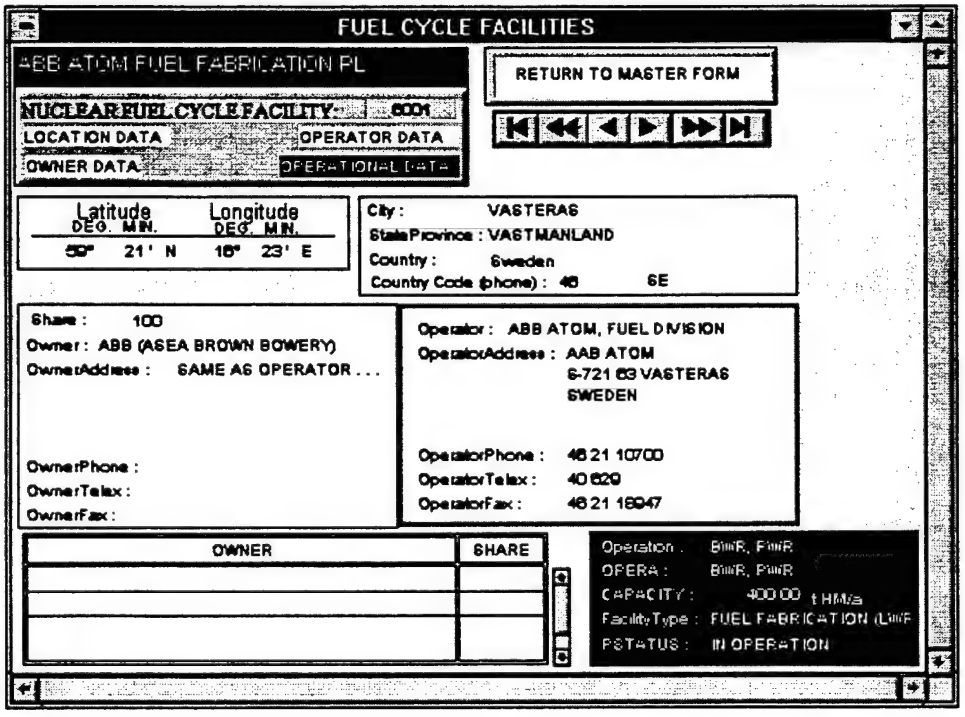
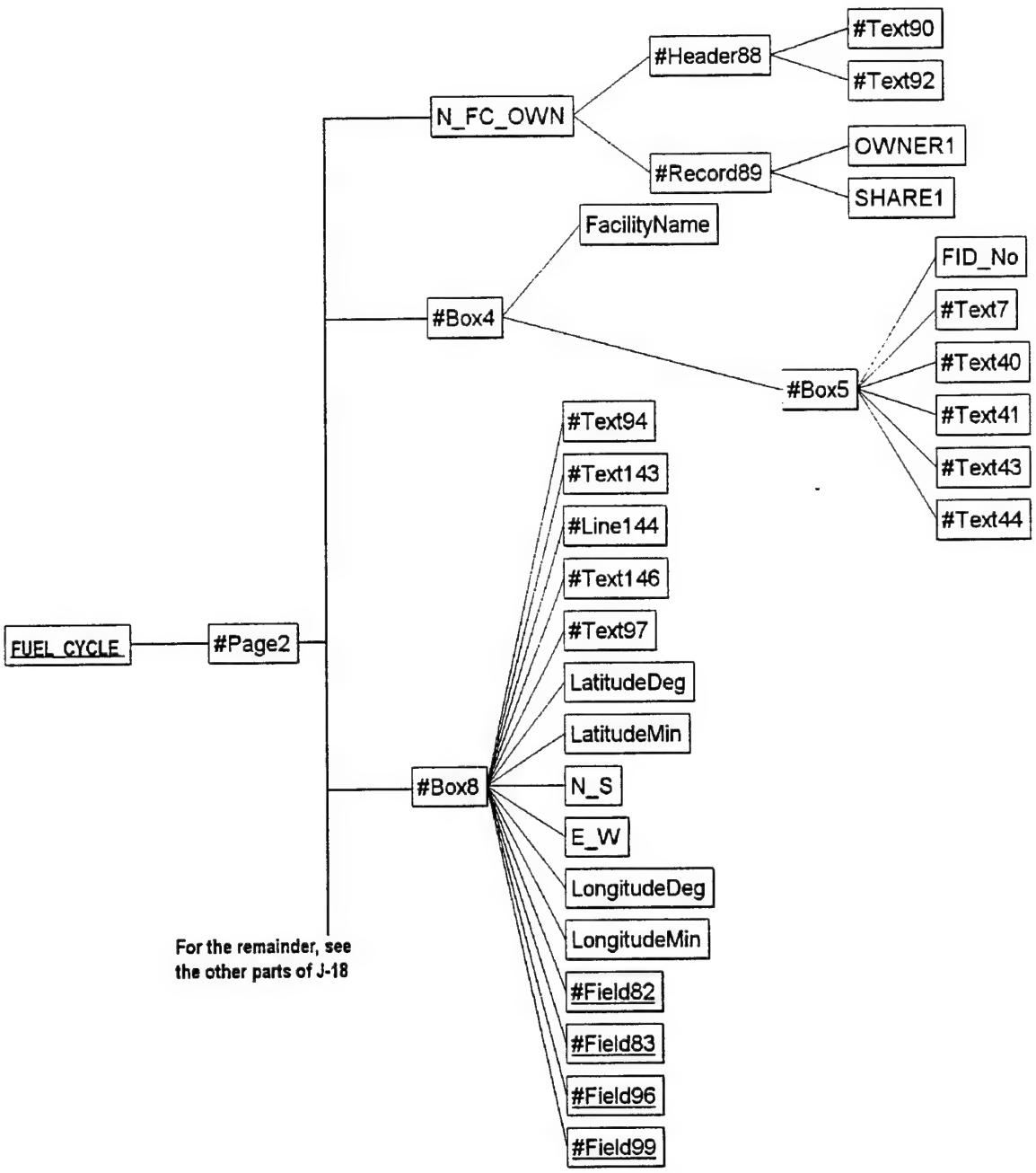
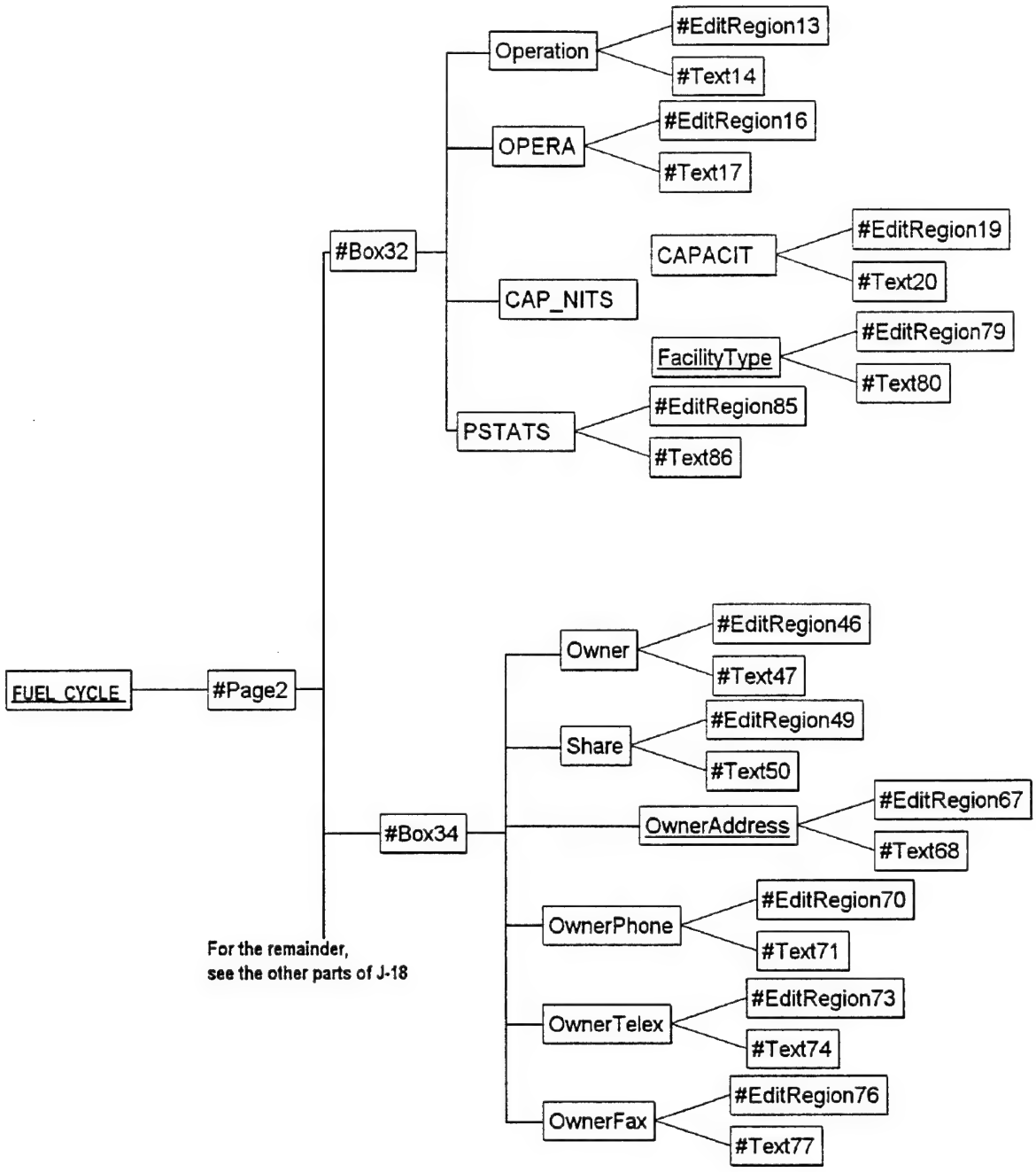


Figure J-17. Nuclear fuel cycle edit (NFC_ED) screen.



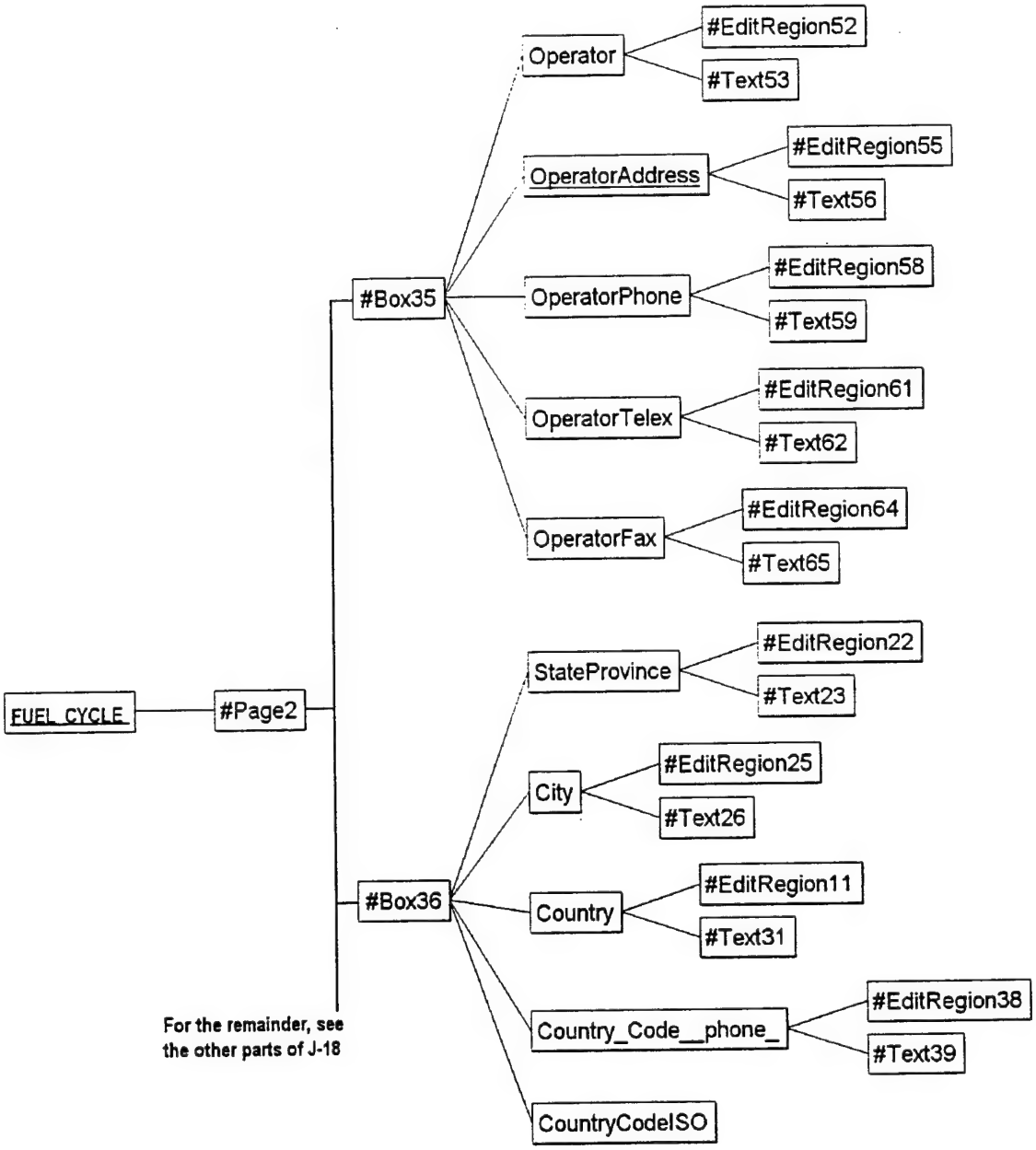
(a) First part

Figure J-18. Nuclear fuel cycle edit (NFC_ED) object tree.



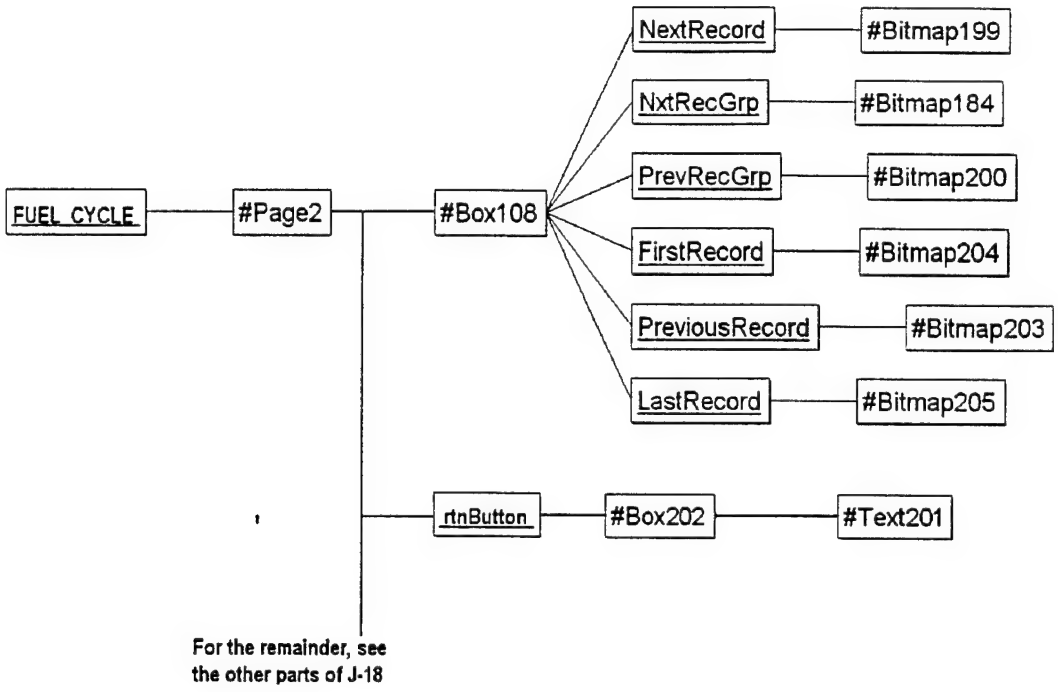
(b) Second part

Figure J-18. Nuclear fuel cycle edit (NFC_ED) object tree (Continued).



(c) Third part

Figure J-18. Nuclear fuel cycle edit (NFC_ED) object tree (Continued).



(d) Fourth part

Figure J-18. Nuclear fuel cycle edit (NFC_ED) object tree (Continued).

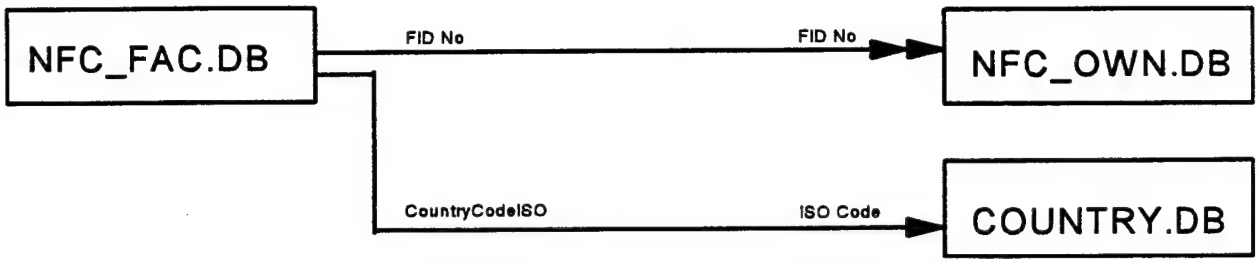


Figure J-19. Nuclear Fuel Cycle Edit (NFC_ED) Data Model.

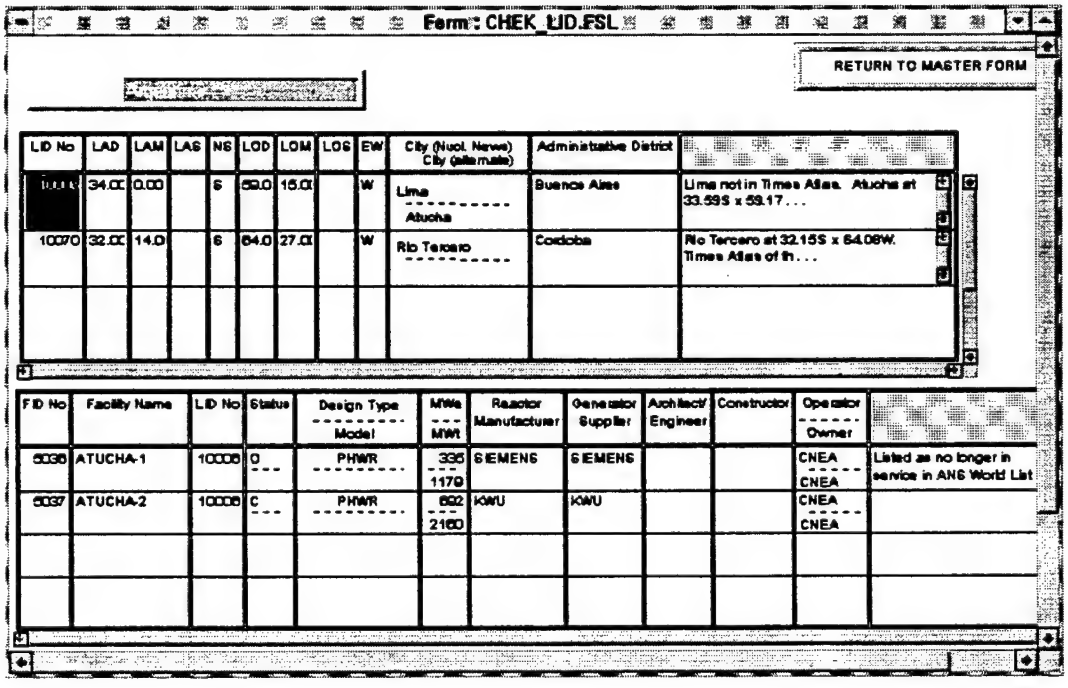
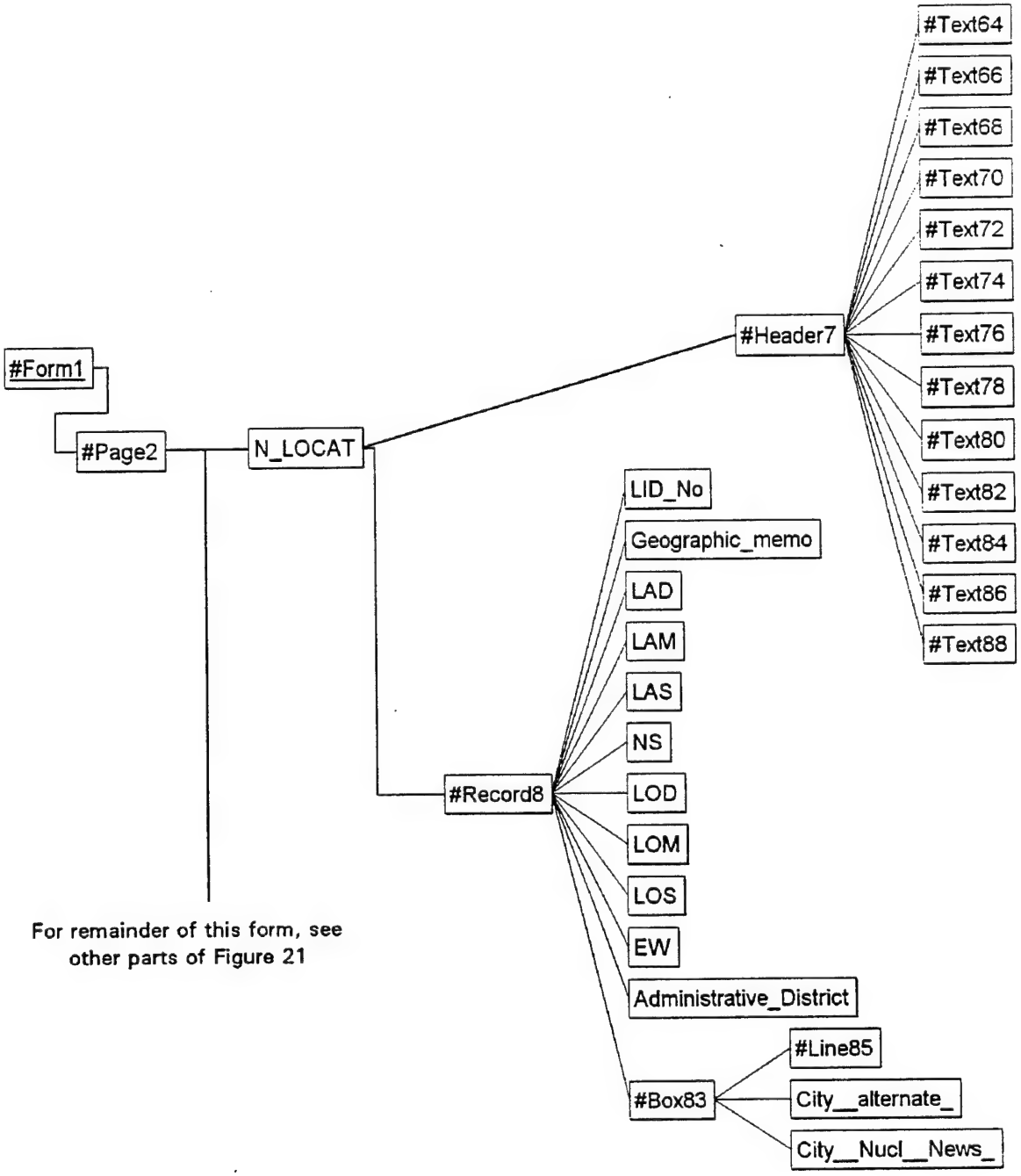
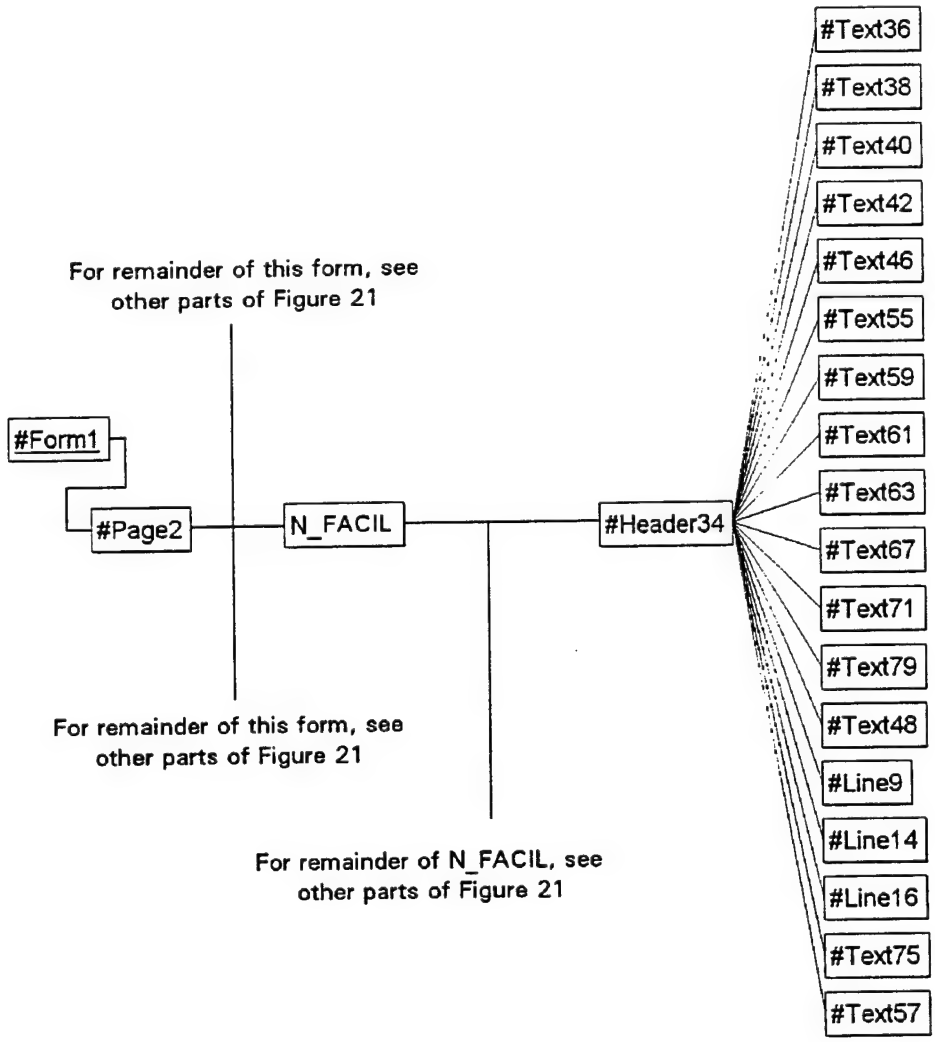


Figure J-20. Check location ID (CHEK_LID) form screen.



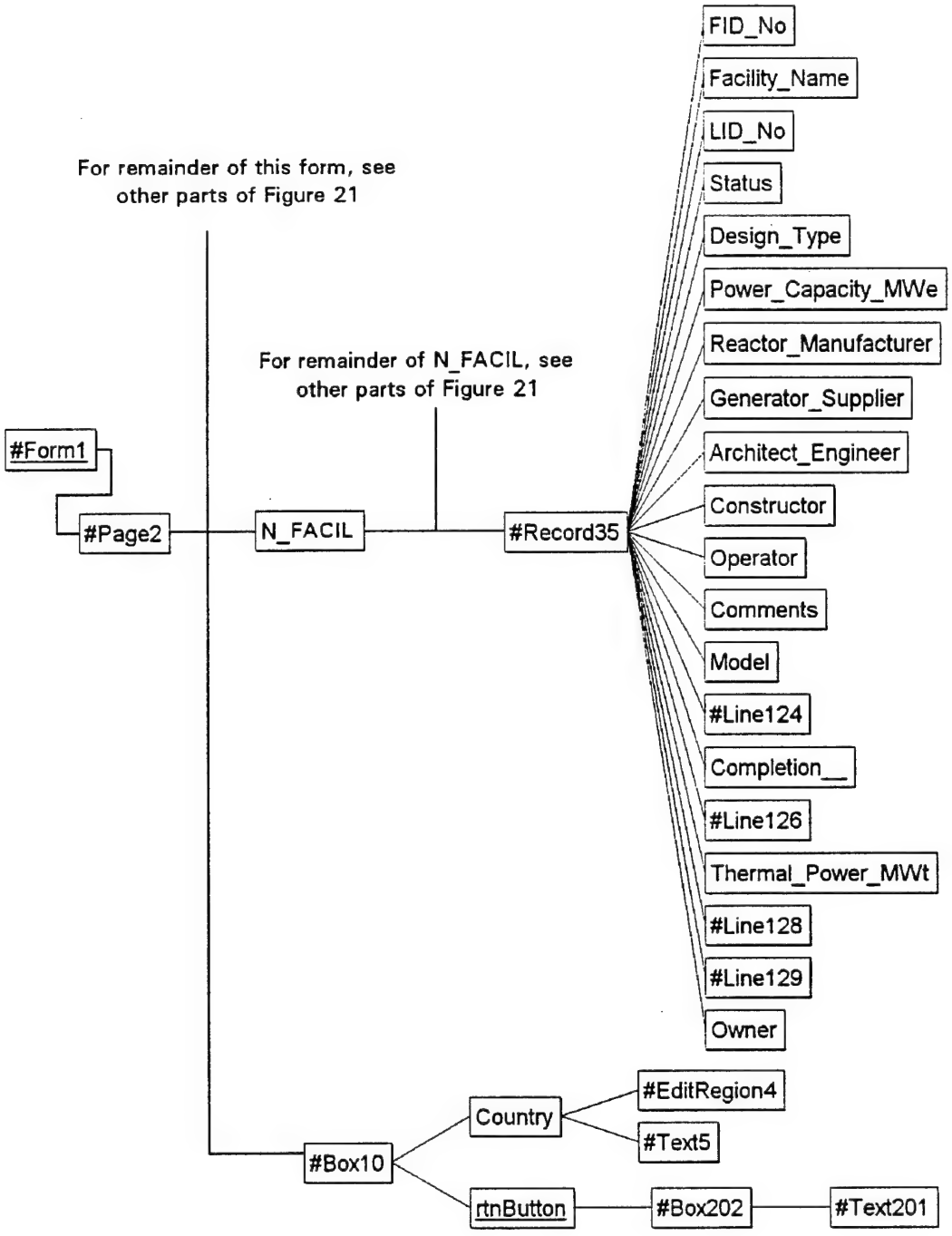
(a) First part

Figure J-21. Check location ID (CHEK_LID) object tree.



(b) Second part

Figure J-21. Check location ID (CHEK_LID) object tree (Continued).



(c) Third part

Figure J-21. Check location ID (CHEK_LID) object tree (Continued).

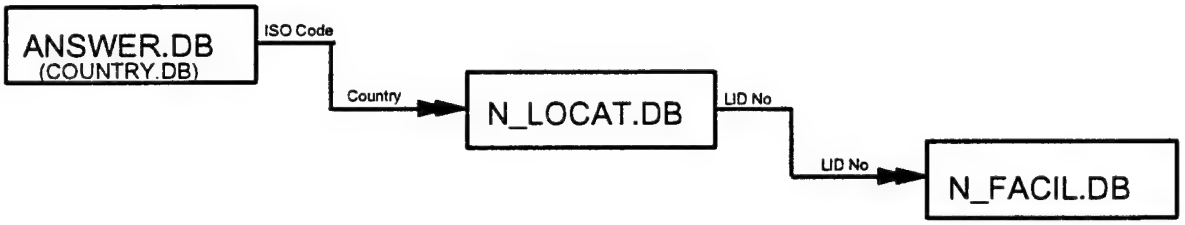


Figure J-22. Check location ID (CHEK_LID) form data model.

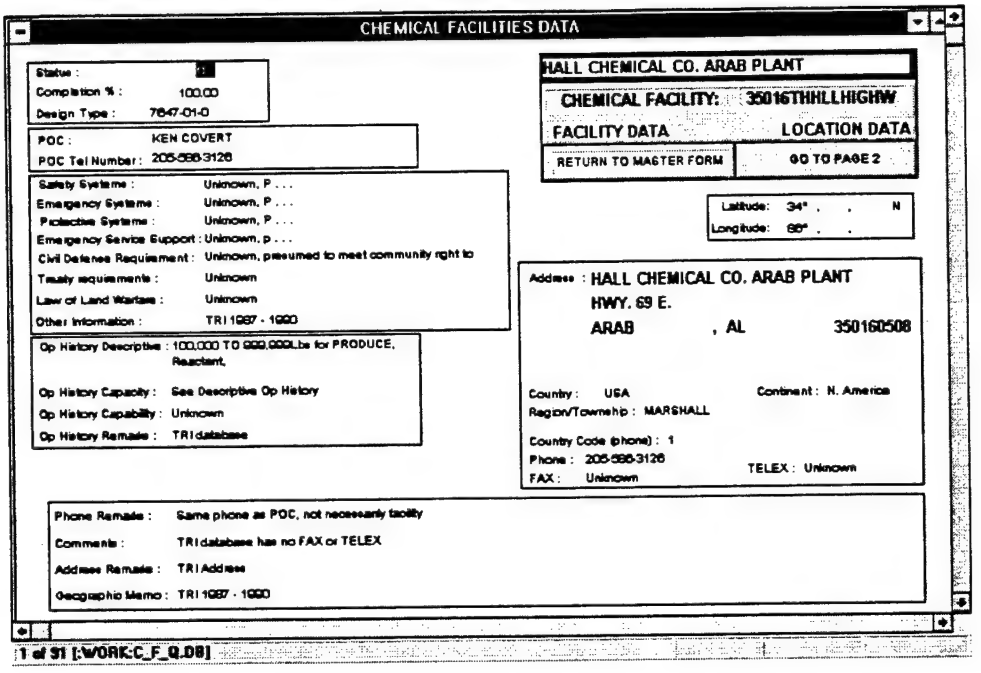


Figure J-23. Chemical facility (C_FAC) form screen page 1.

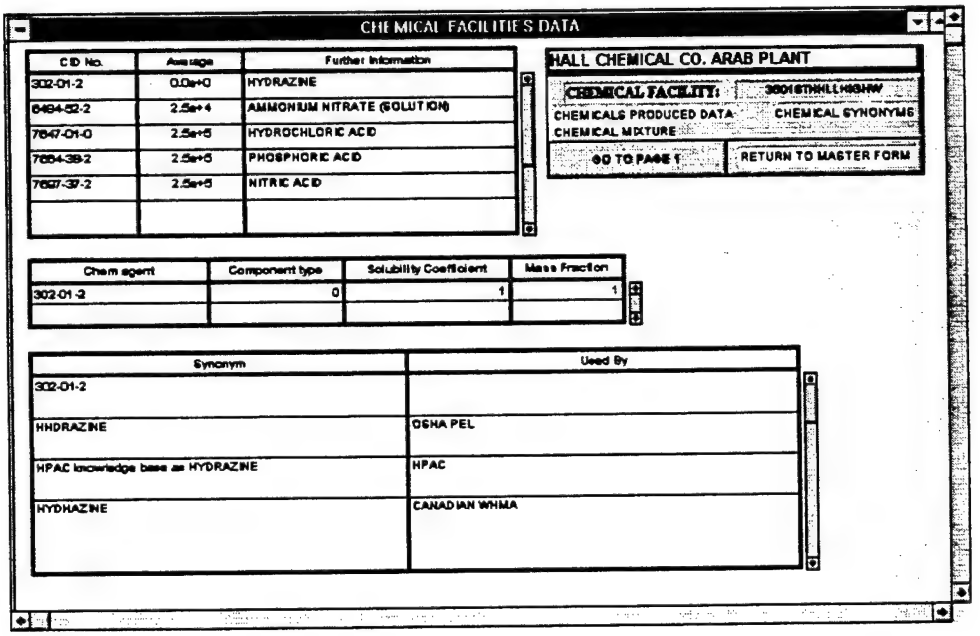


Figure J-24. Chemical facility (C_FAC) form screen page 2.

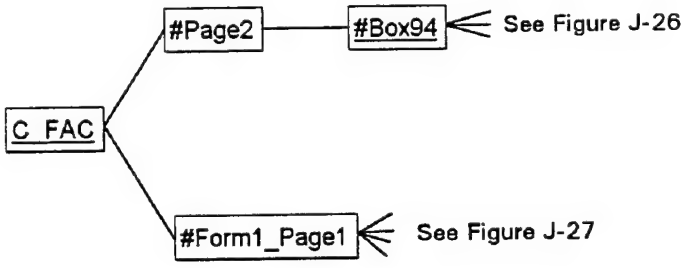
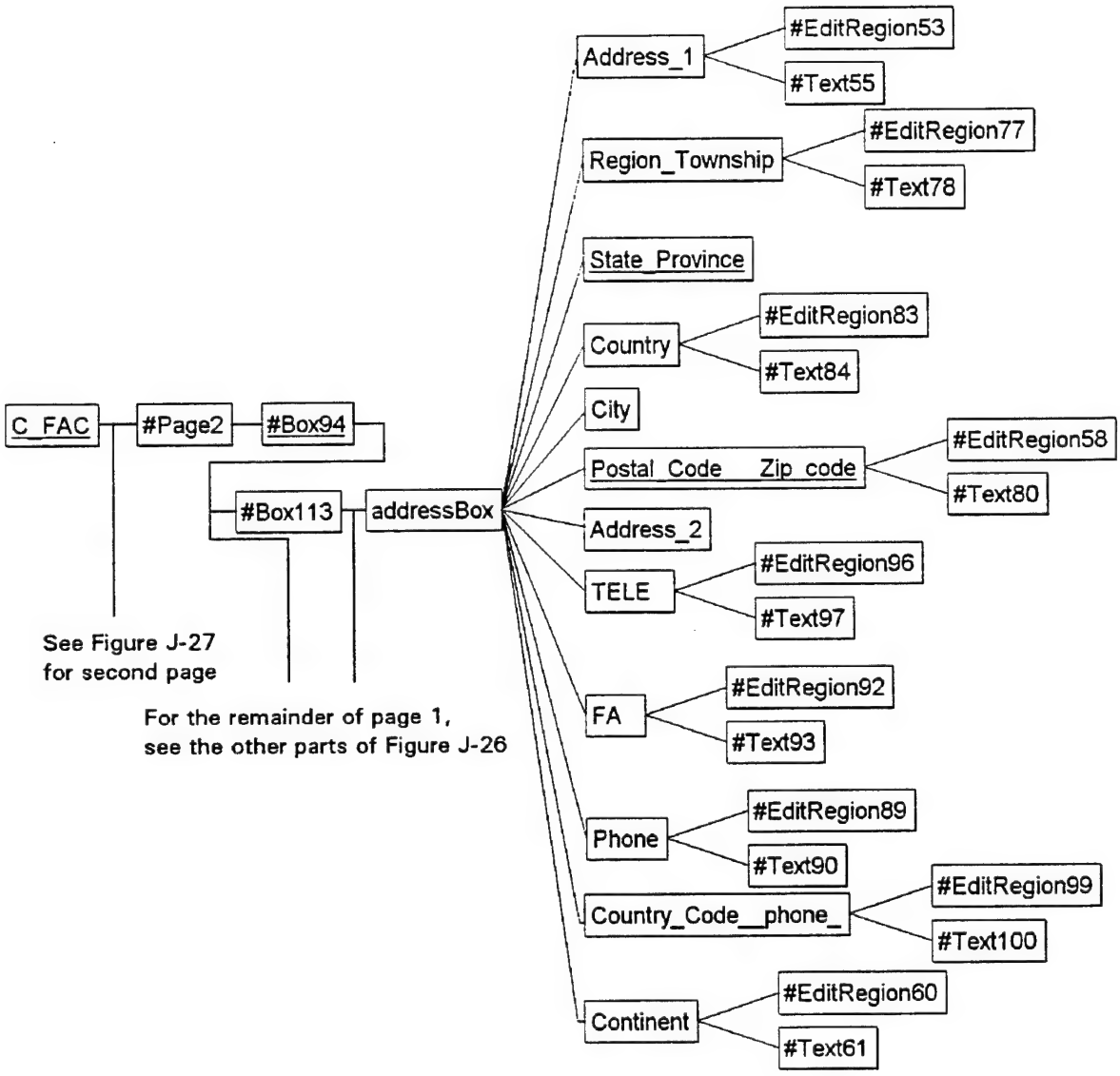
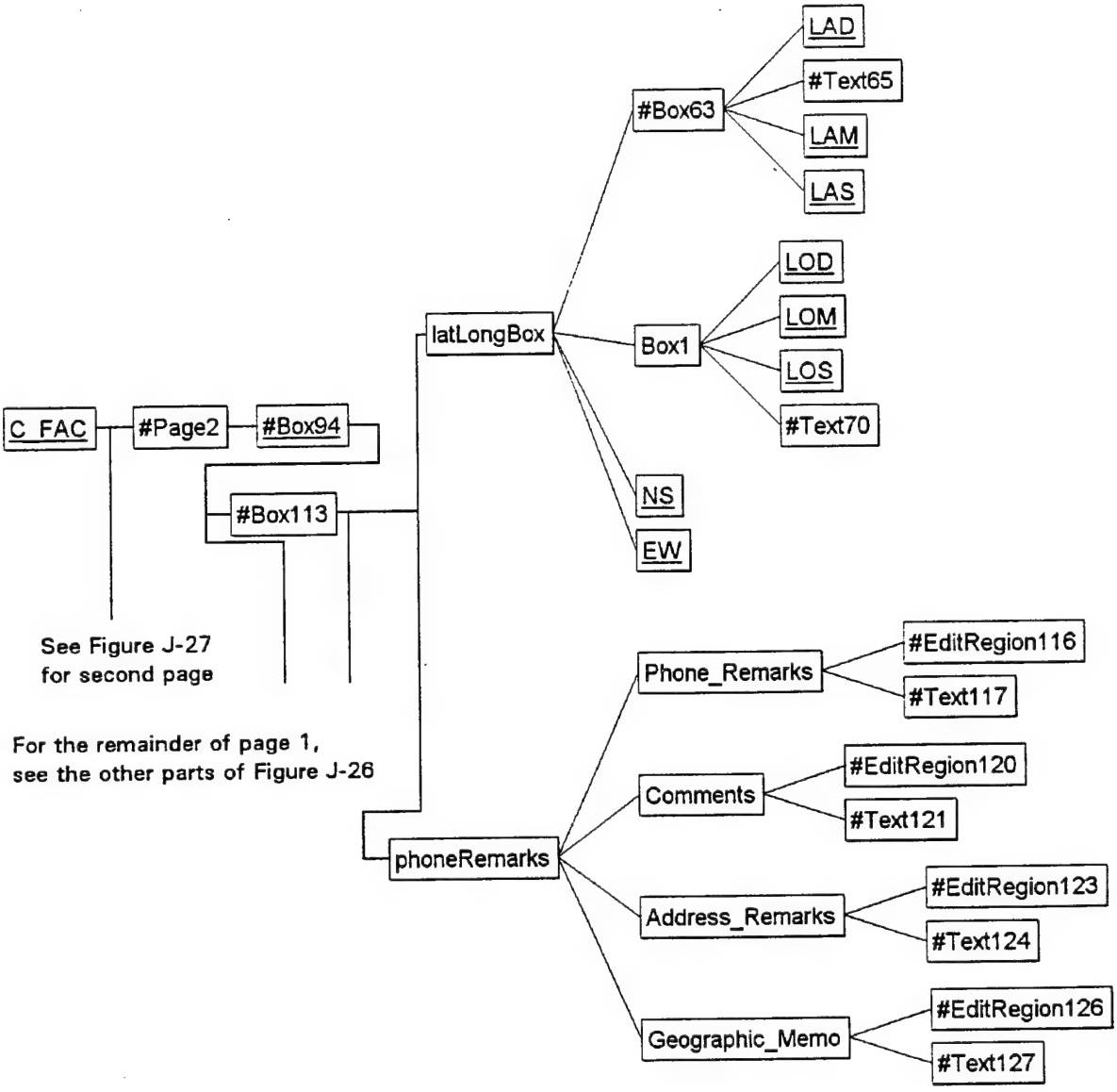


Figure J-25. Chemical facility (C_FAC) form object tree.



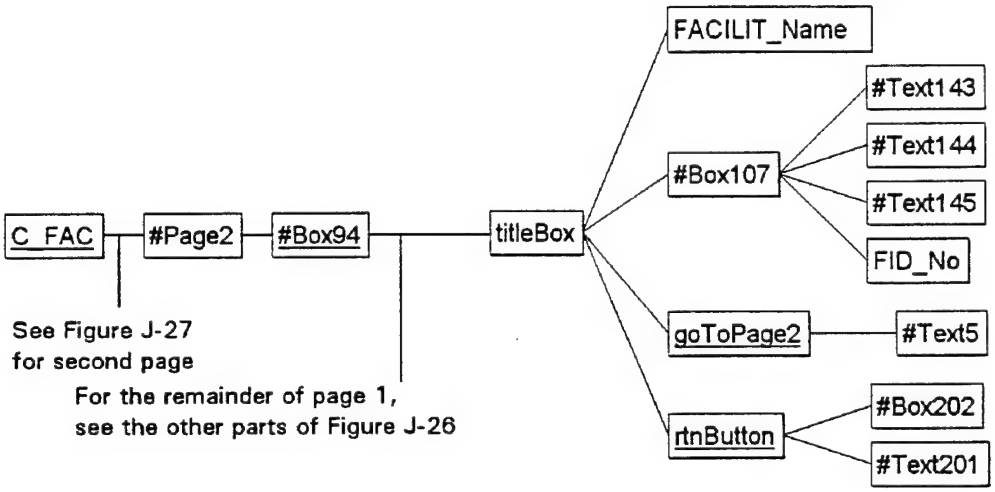
(a) First part

Figure J-26. Chemical facility (C_FAC) form object tree page 1.



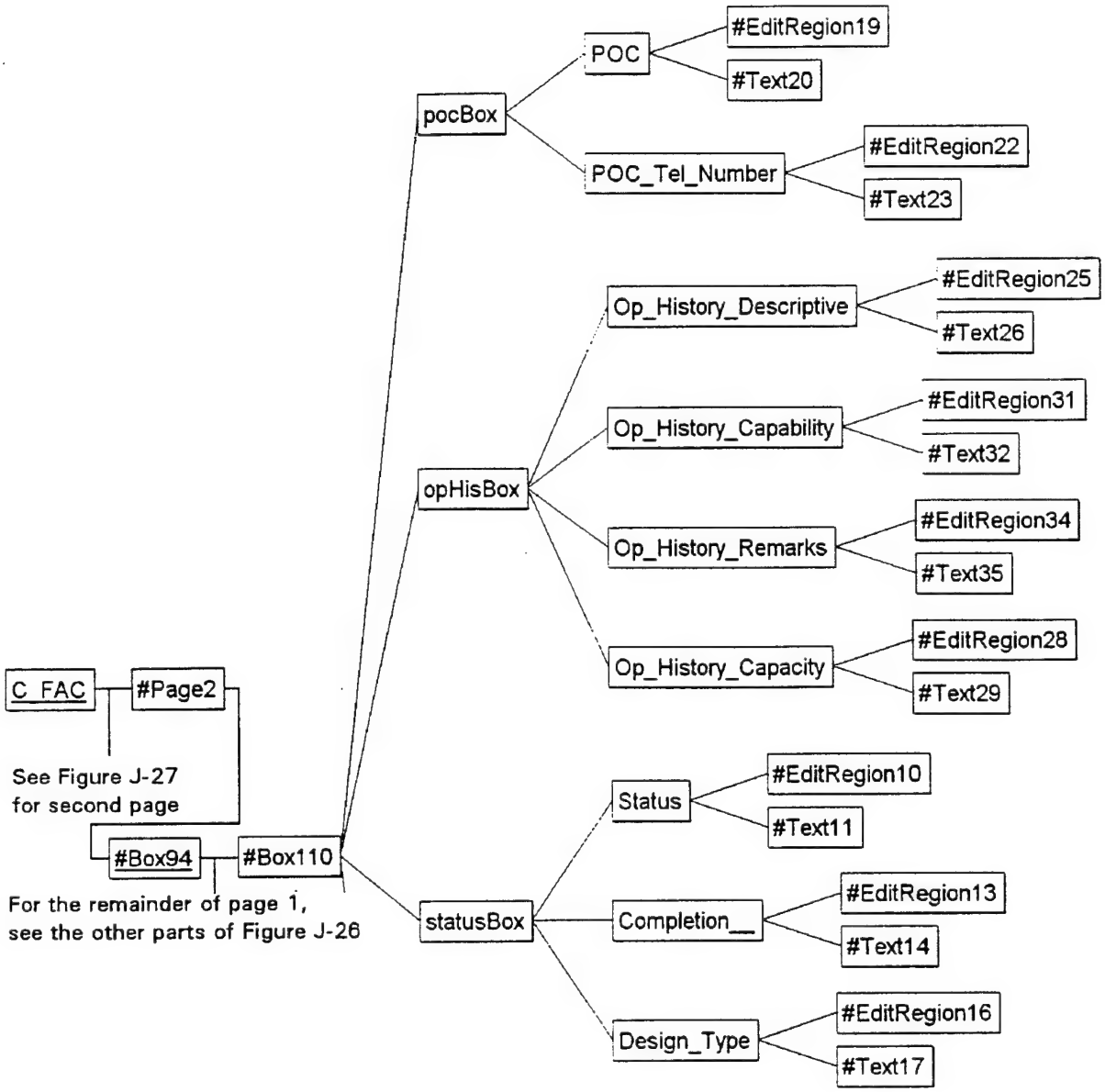
(b) Second part

Figure J-26. Chemical facility (C_FAC) form object tree page 1 (Continued).



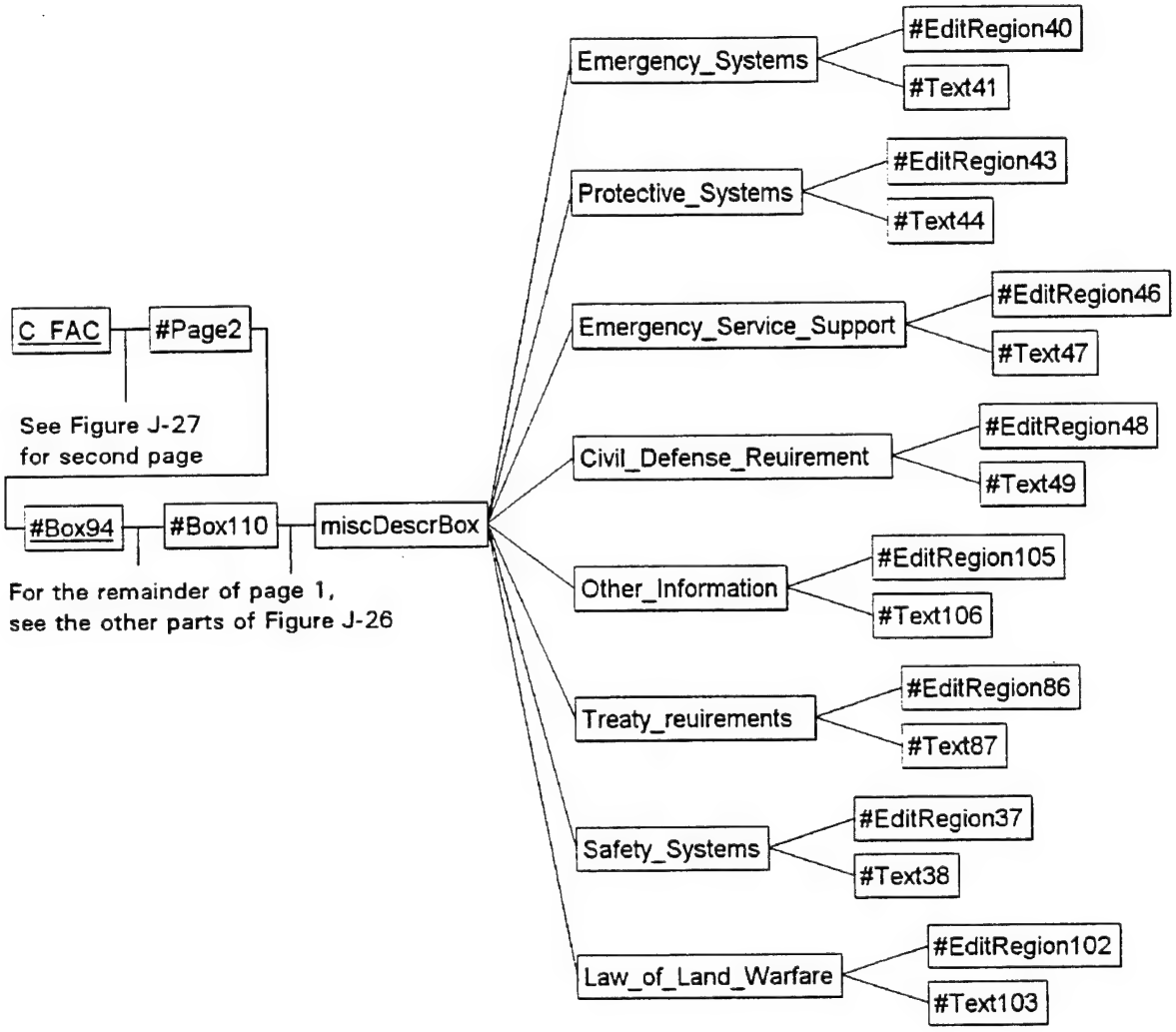
(c) Third part

Figure J-26. Chemical facility (C_FAC) form object tree page 1 (Continued).



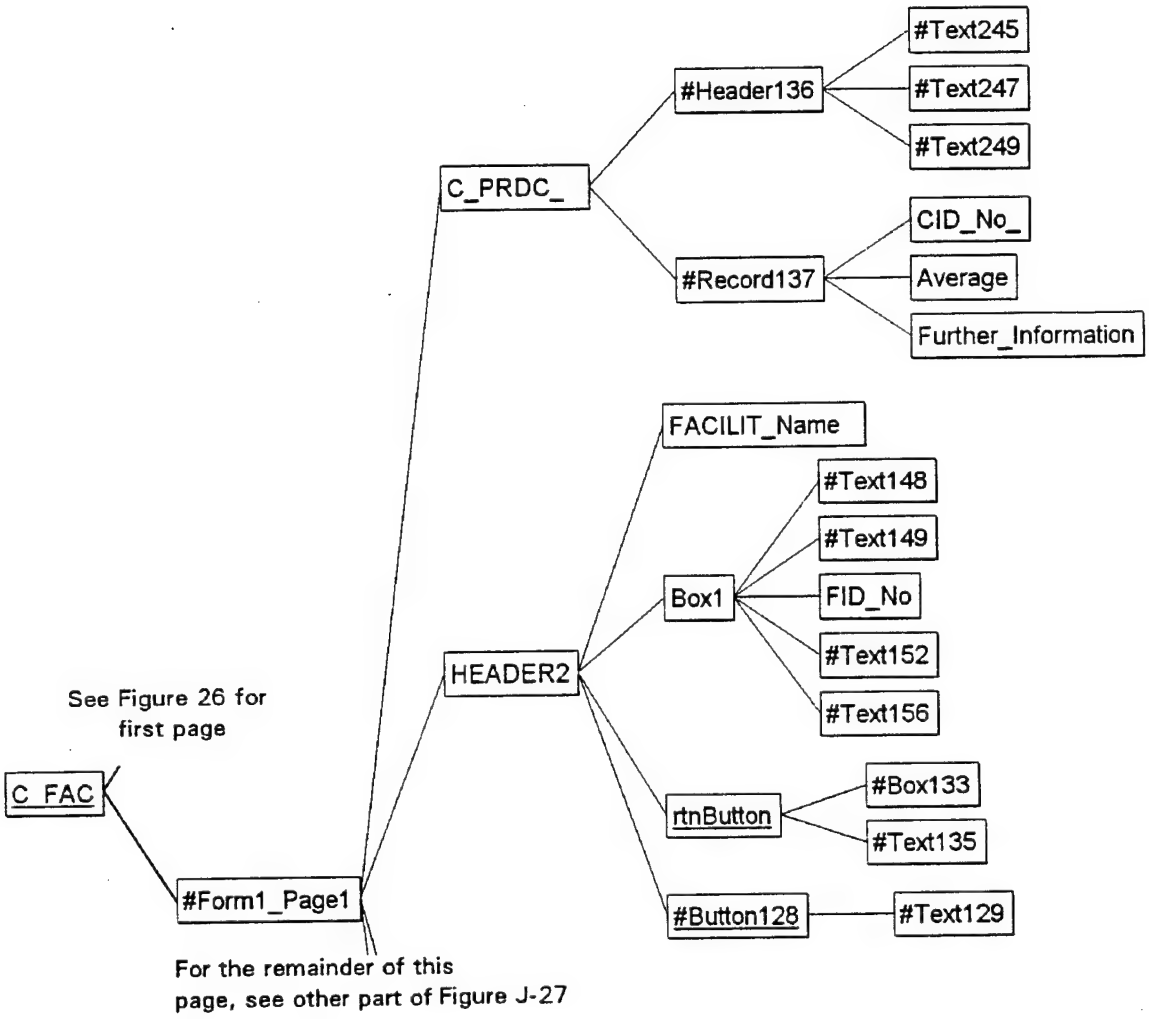
(d) Fourth part

Figure J-26. Chemical facility (C_FAC) form object tree page 1 (Continued).



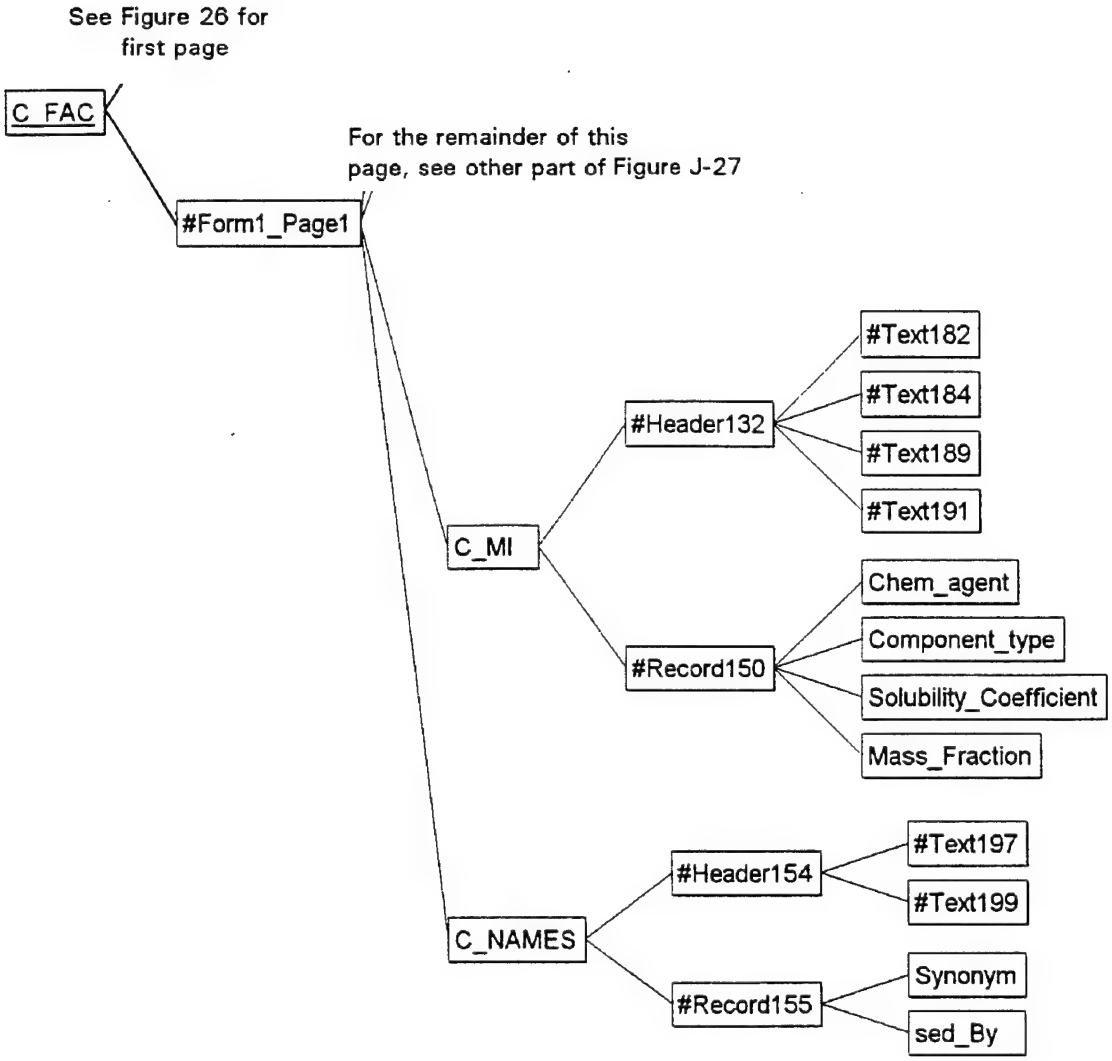
(e) Fifth part

Figure J-26. Chemical facility (C_FAC) form object tree page 1 (Continued).



(a) First part

Figure J-27. Chemical facility (C_FAC) form object tree page 2.



(b) Second part

Figure J-27. Chemical facility (C_FAC) form object tree page 2 (Continued).

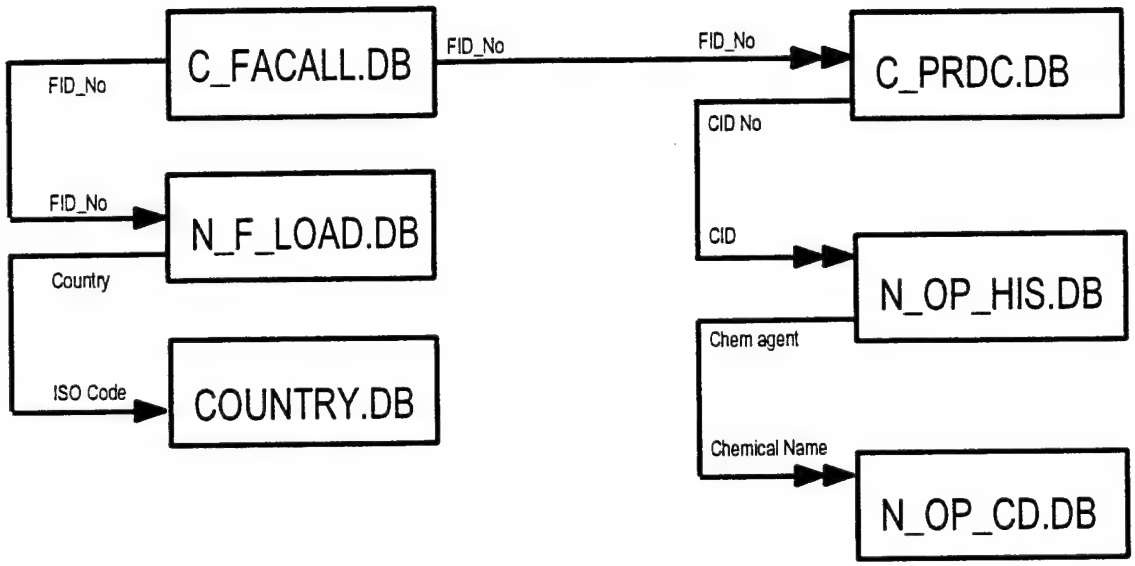


Figure J-28. Chemical facility (C_FAC) form data model.

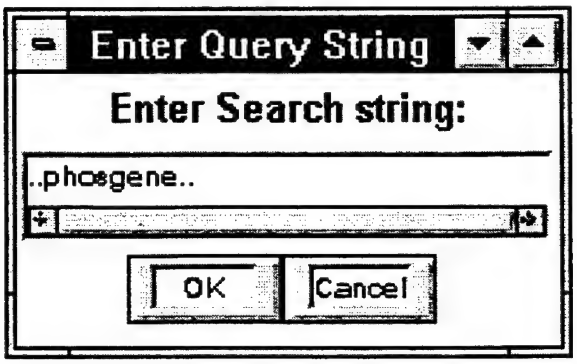


Figure J-29. Chemical facility query (C_F_QRY) form dialog screen.

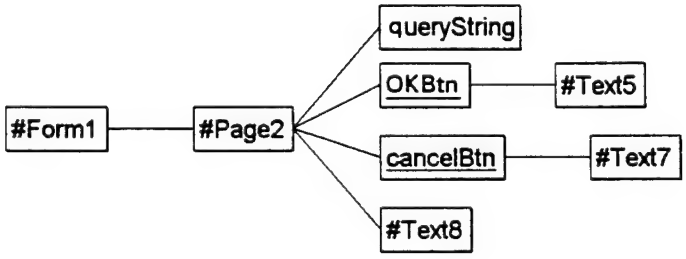


Figure J-30. Chemical facility query (C_F_QRY) form object tree.

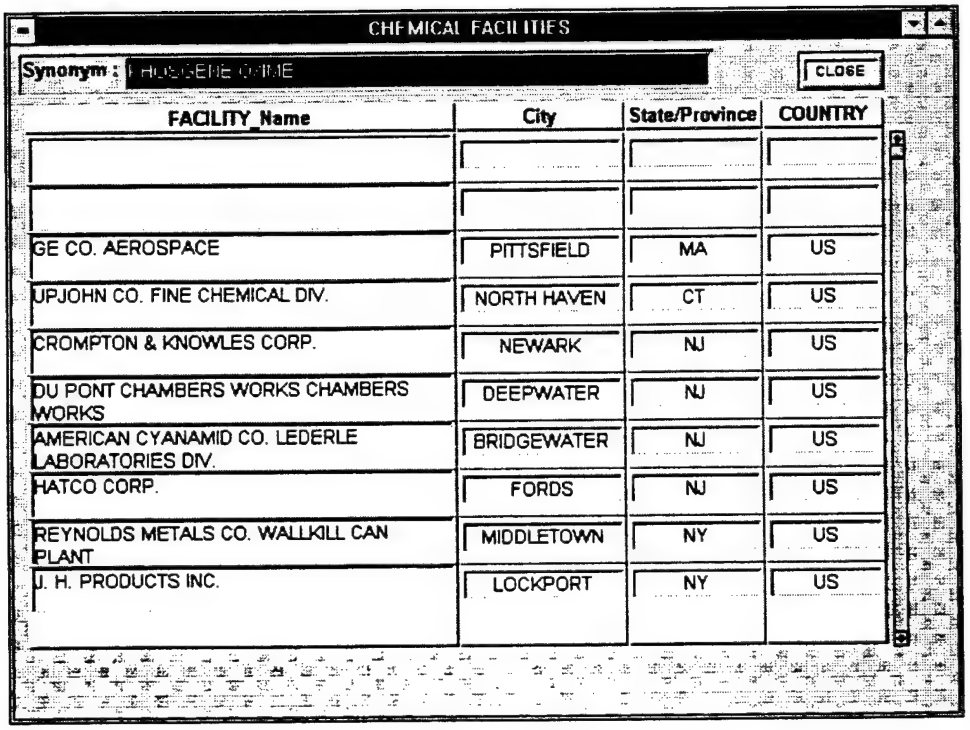


Figure J-31. Chemical facility query (CHEM_FAC) form screen.

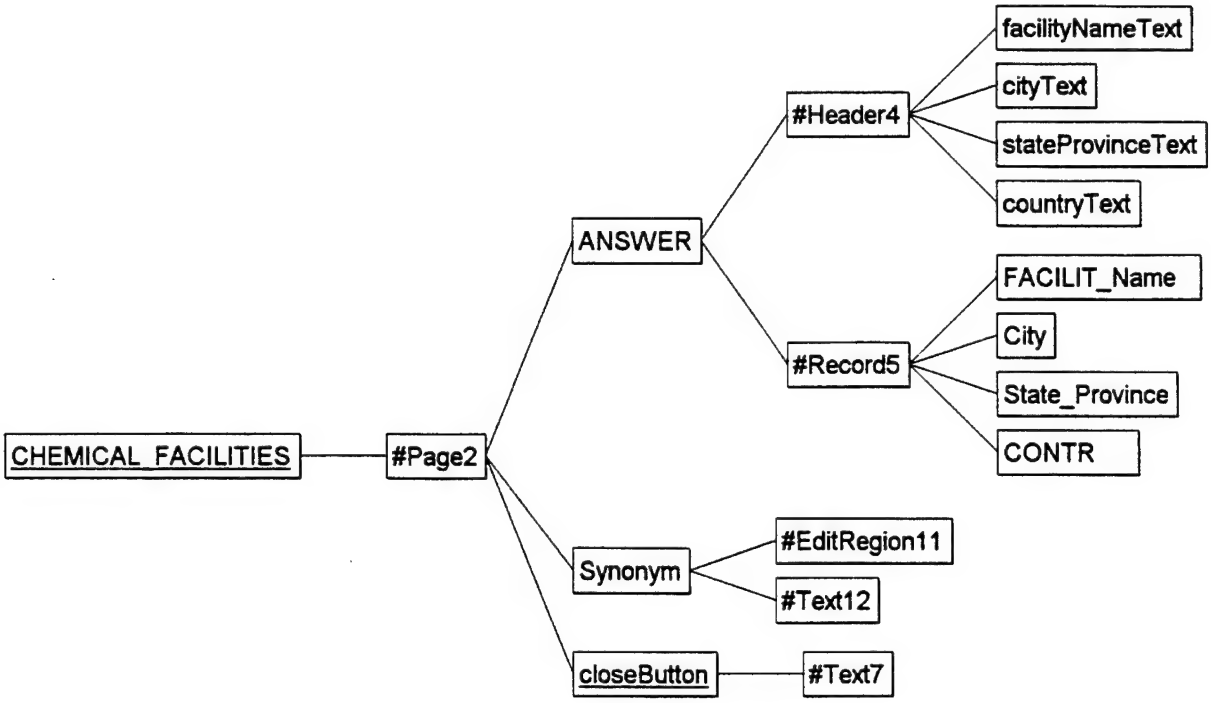


Figure J-32. Chemical facilities (CHEM_FAC) form object tree.

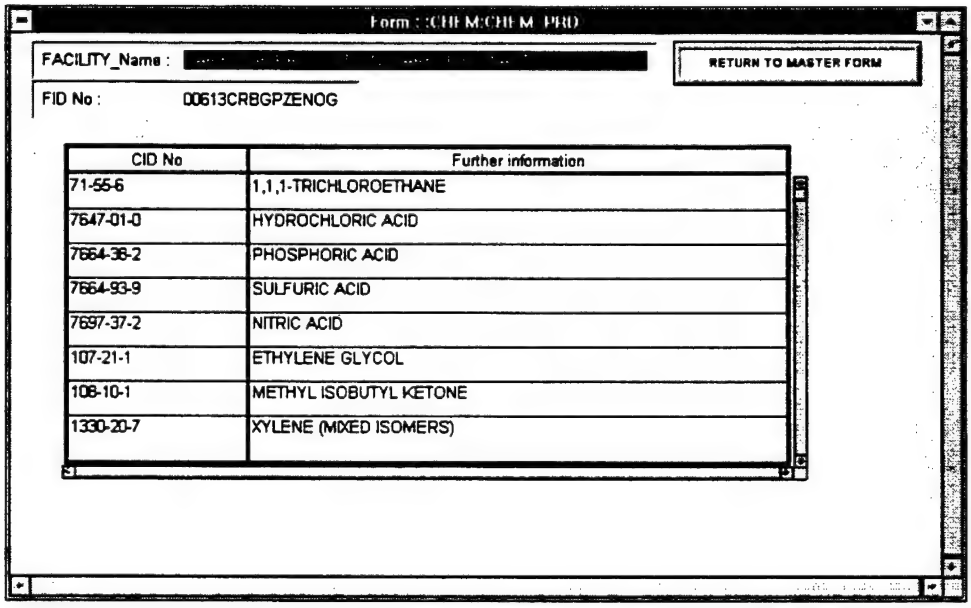


Figure J-33. Chemicals produced (CHEM_PRD) form screen.

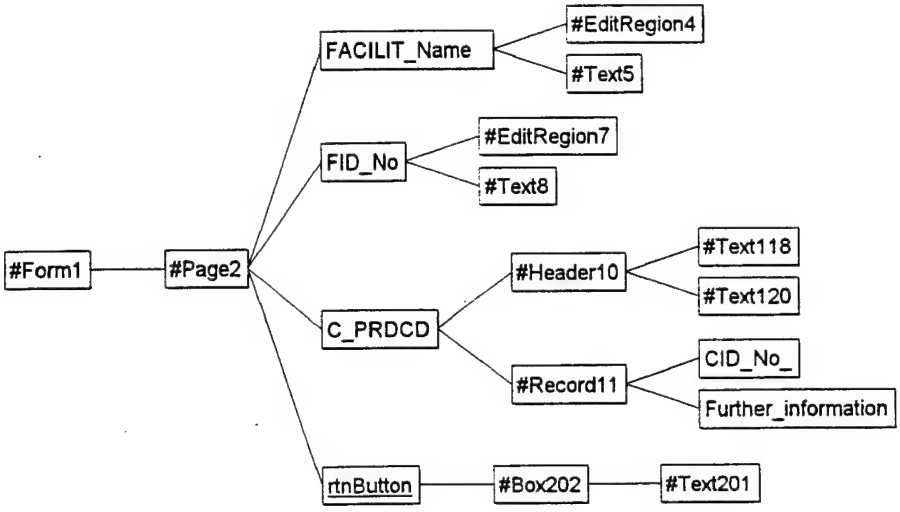


Figure J-34. Chemicals produced (CHEM_PRD) form object tree.

Figure J-35. Chemicals produced (CHEM_PRD) form data model.

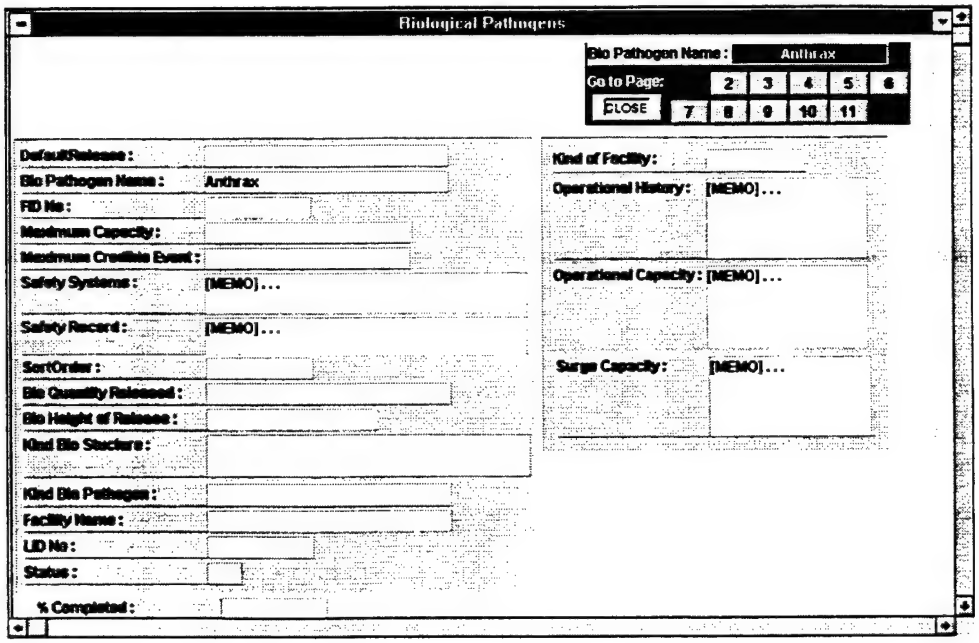


Figure J-36. BIO form screen page 1.

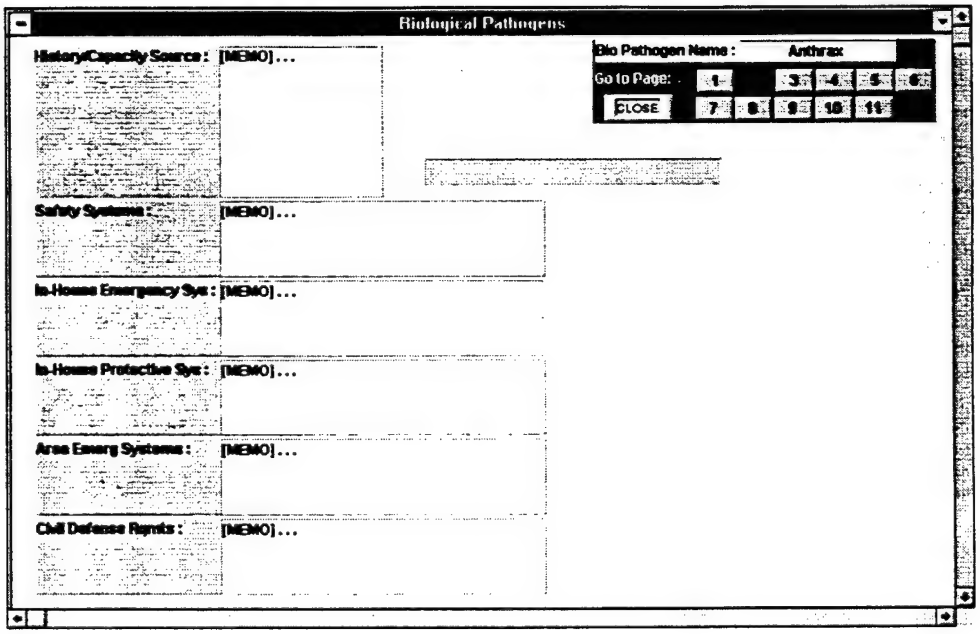


Figure J-37. BIO form screen page 2.

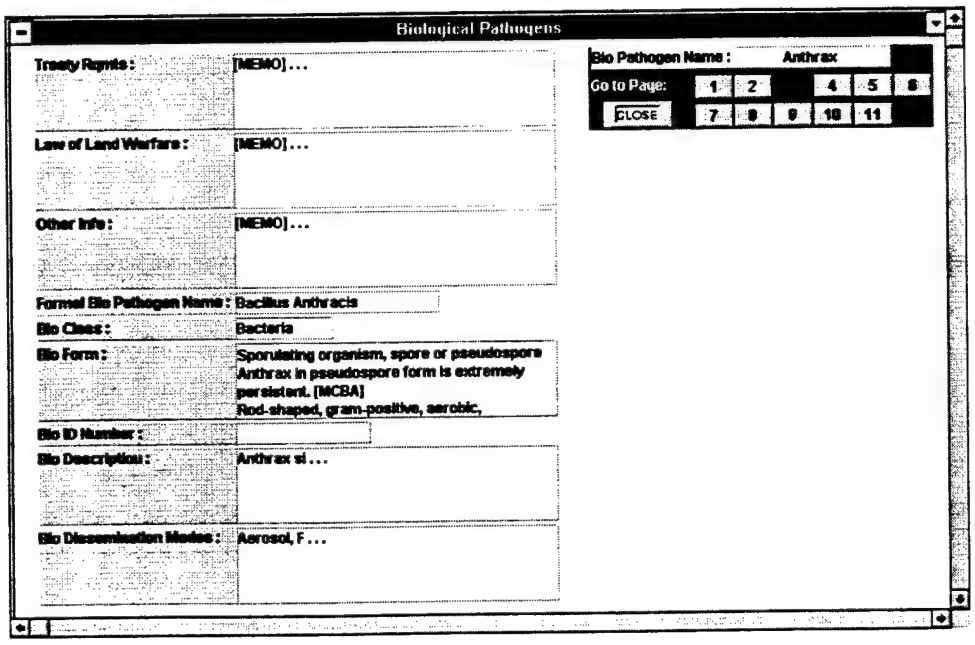


Figure J-38. BIO form screen page 3.

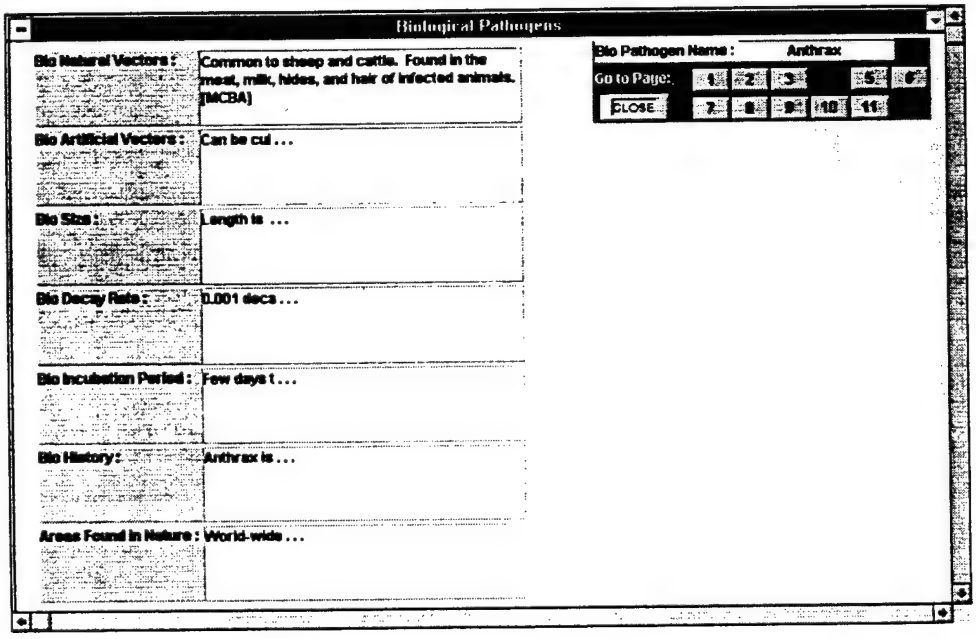


Figure J-39. BIO form screen page 4.

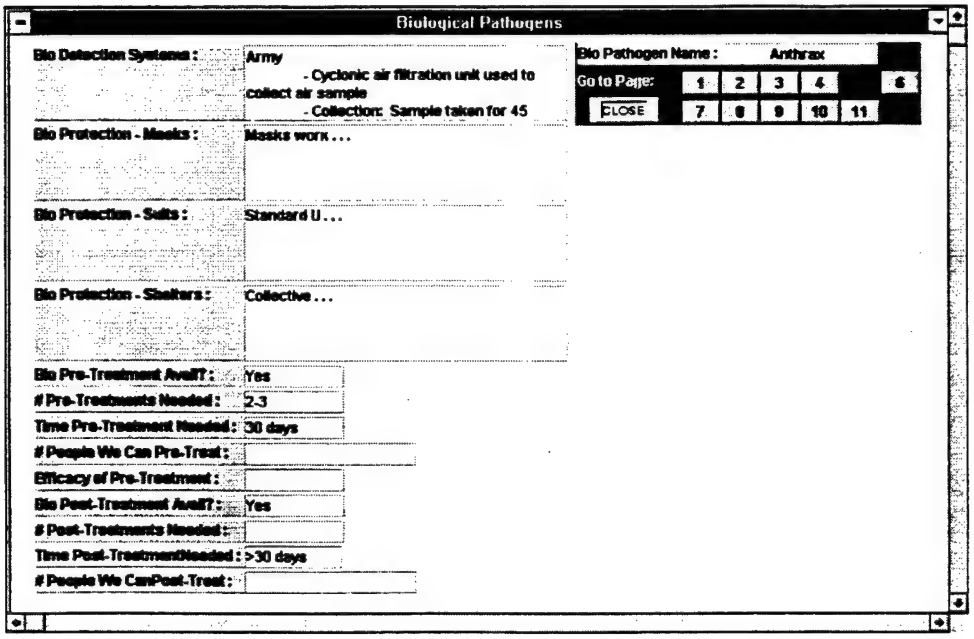


Figure J-40. BIO form screen page 5.

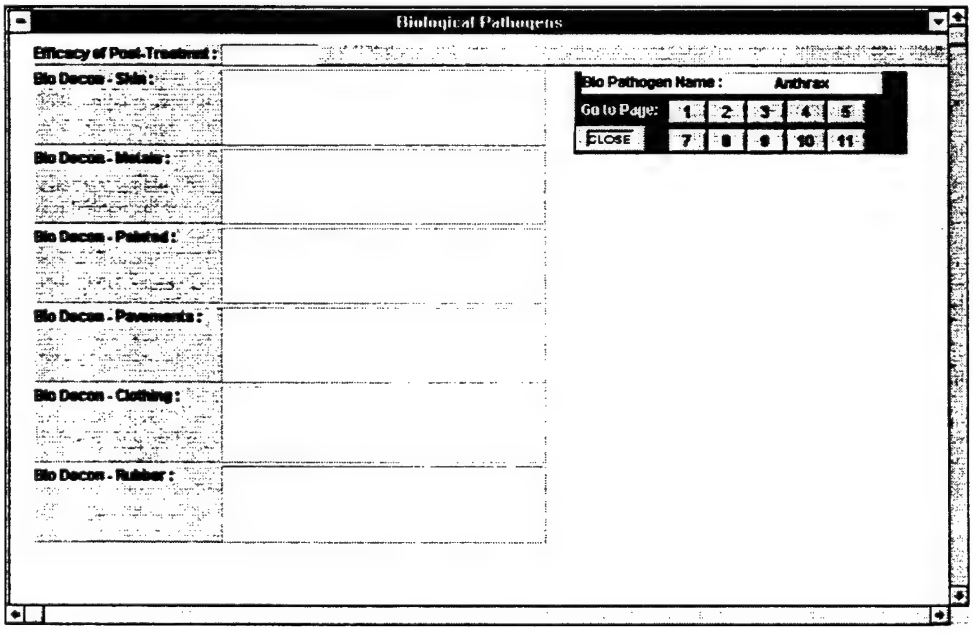


Figure J-41. BIO form screen page 6.

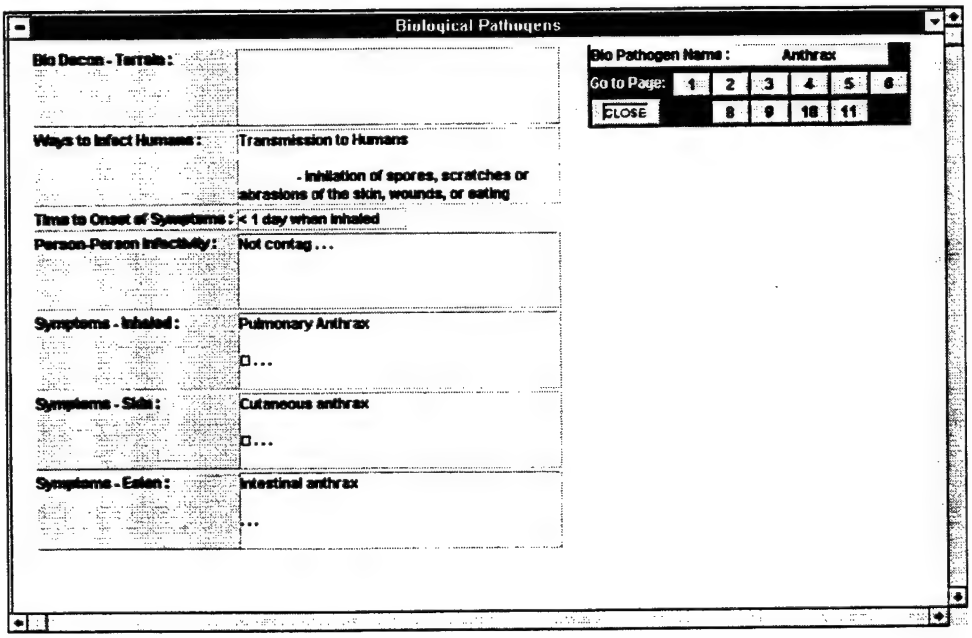


Figure J-42. BIO form screen page 7.

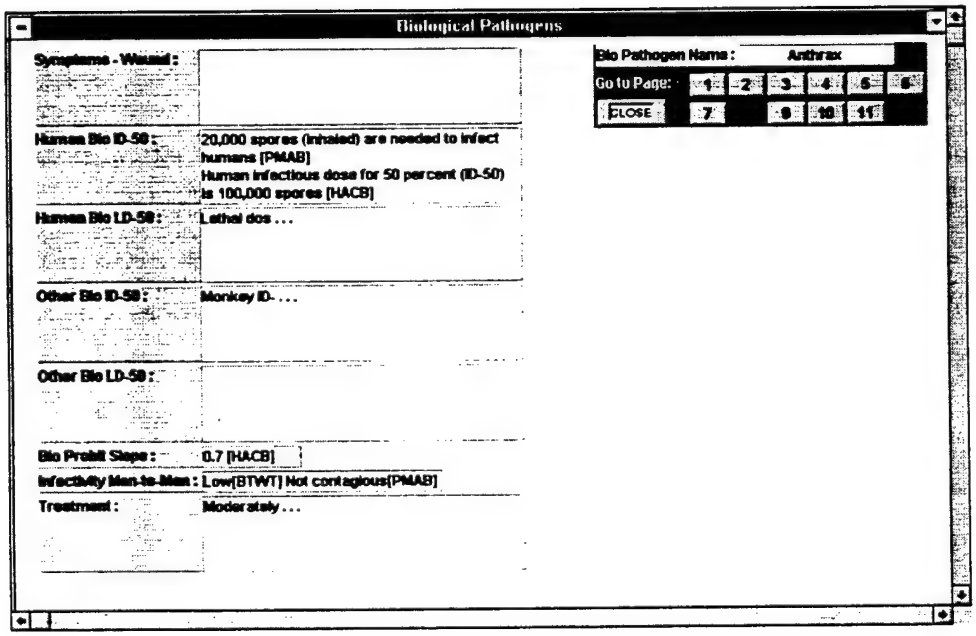


Figure J-43. BIO form screen page 8.

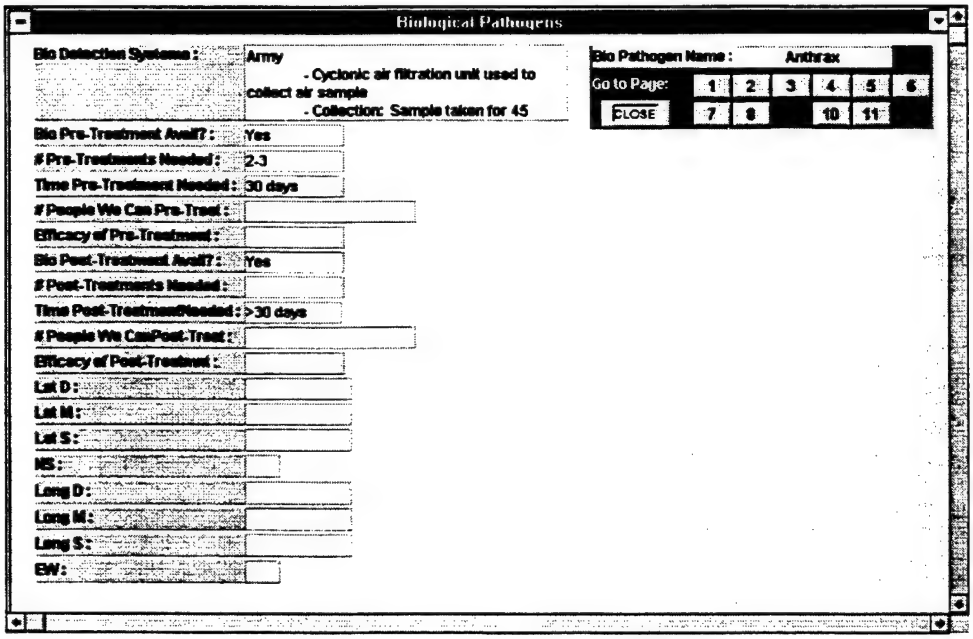


Figure J-44. BIO form screen page 9.

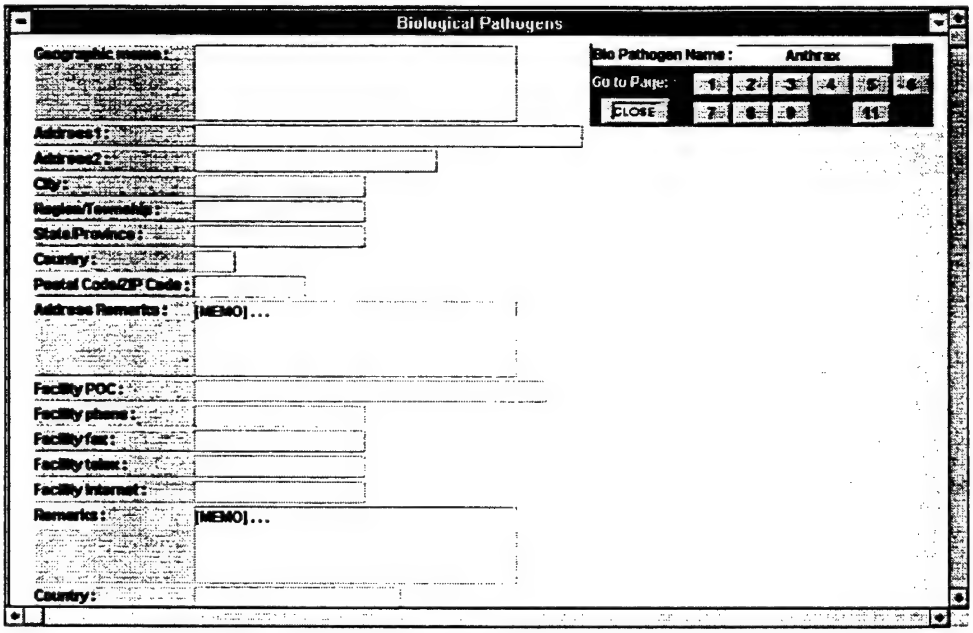


Figure J-45. BIO form screen page 10.

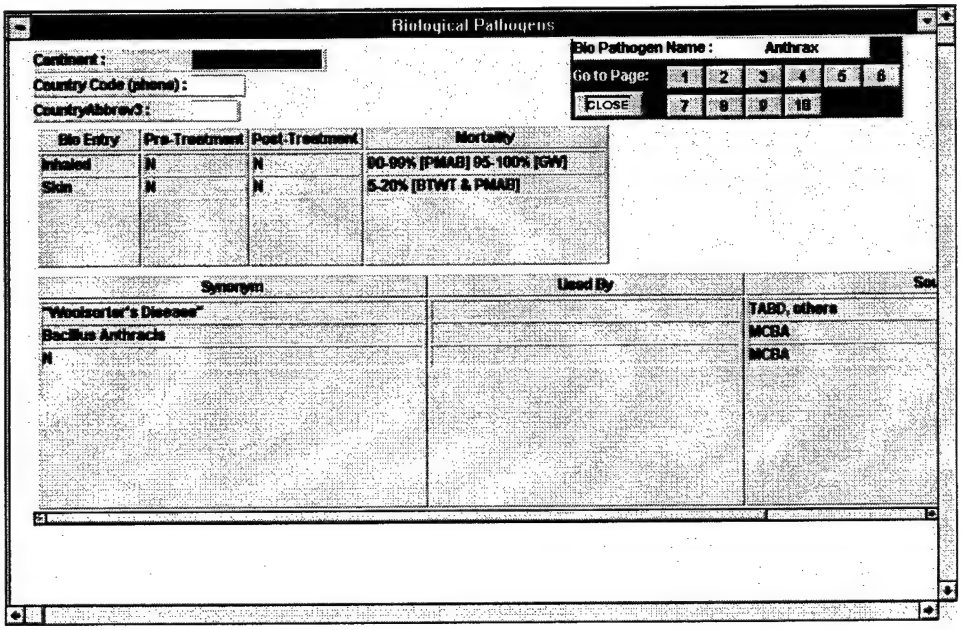


Figure J-46. BIO form screen page 11.

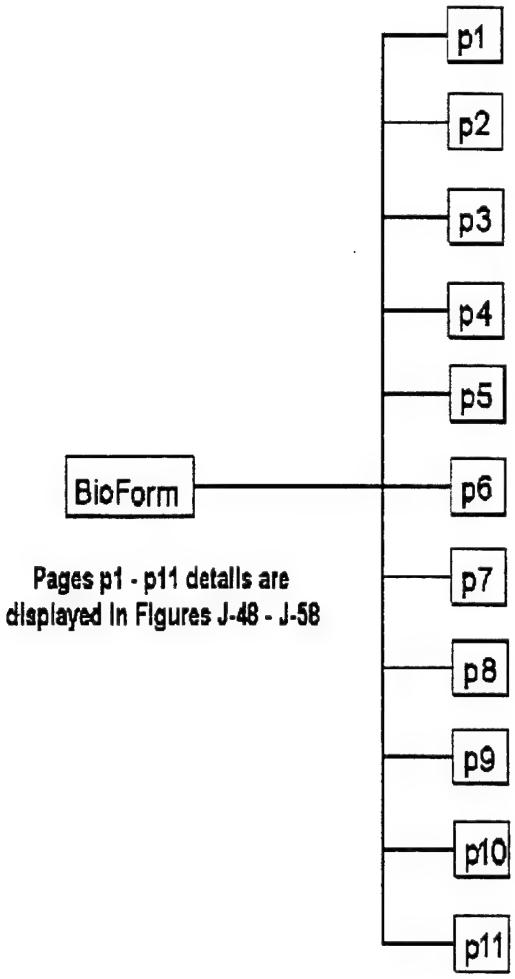
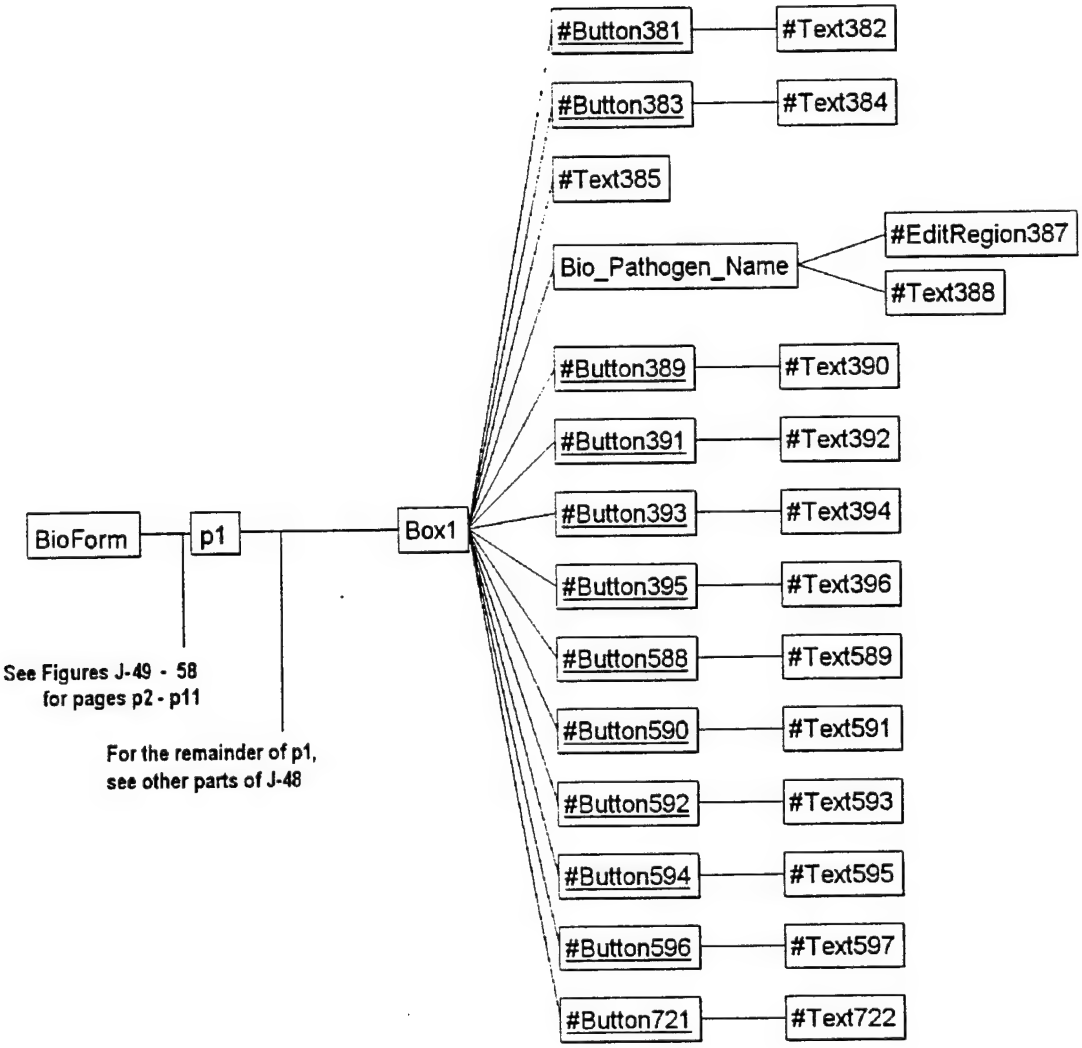
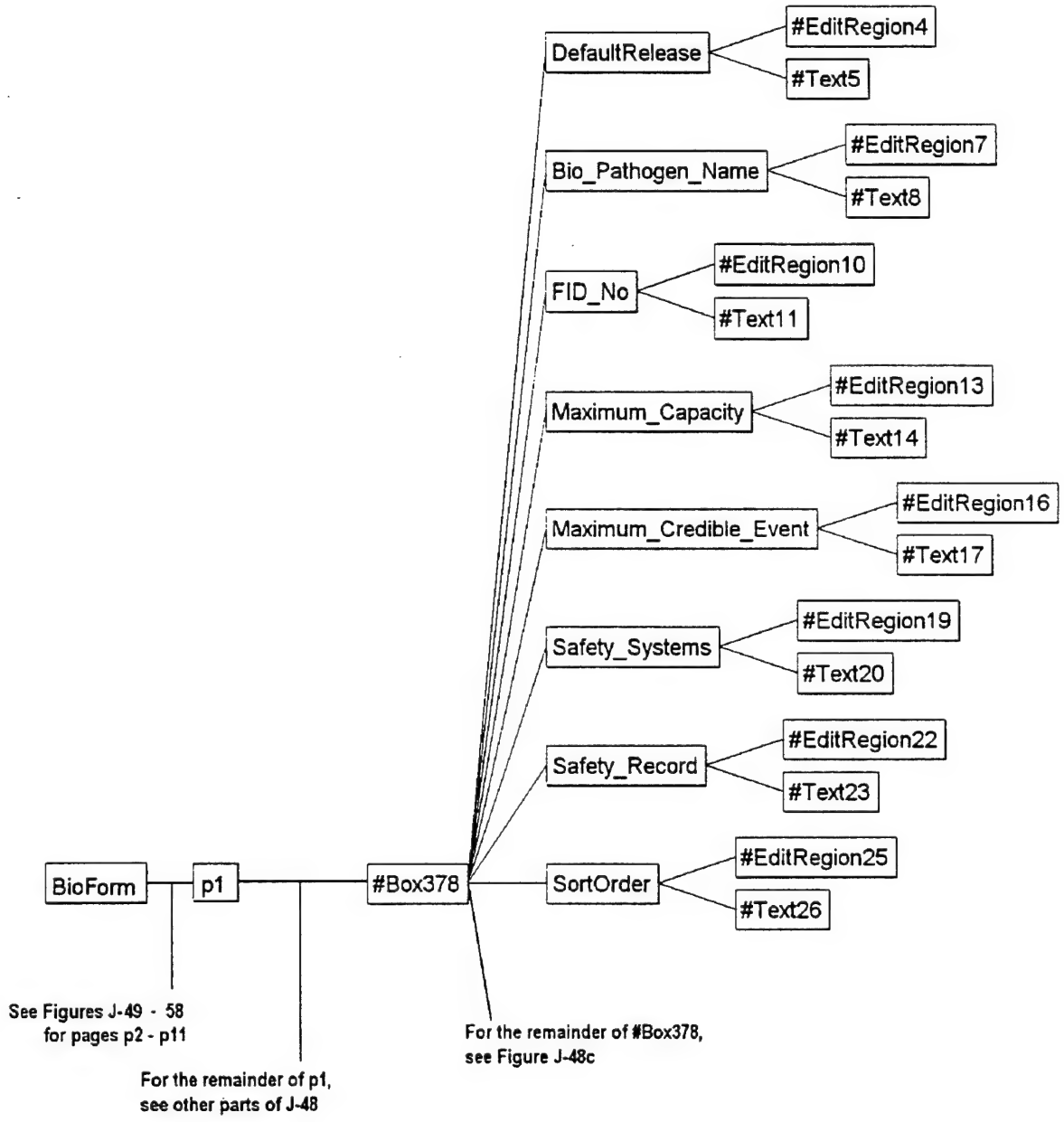


Figure J-47. BIO form object tree.



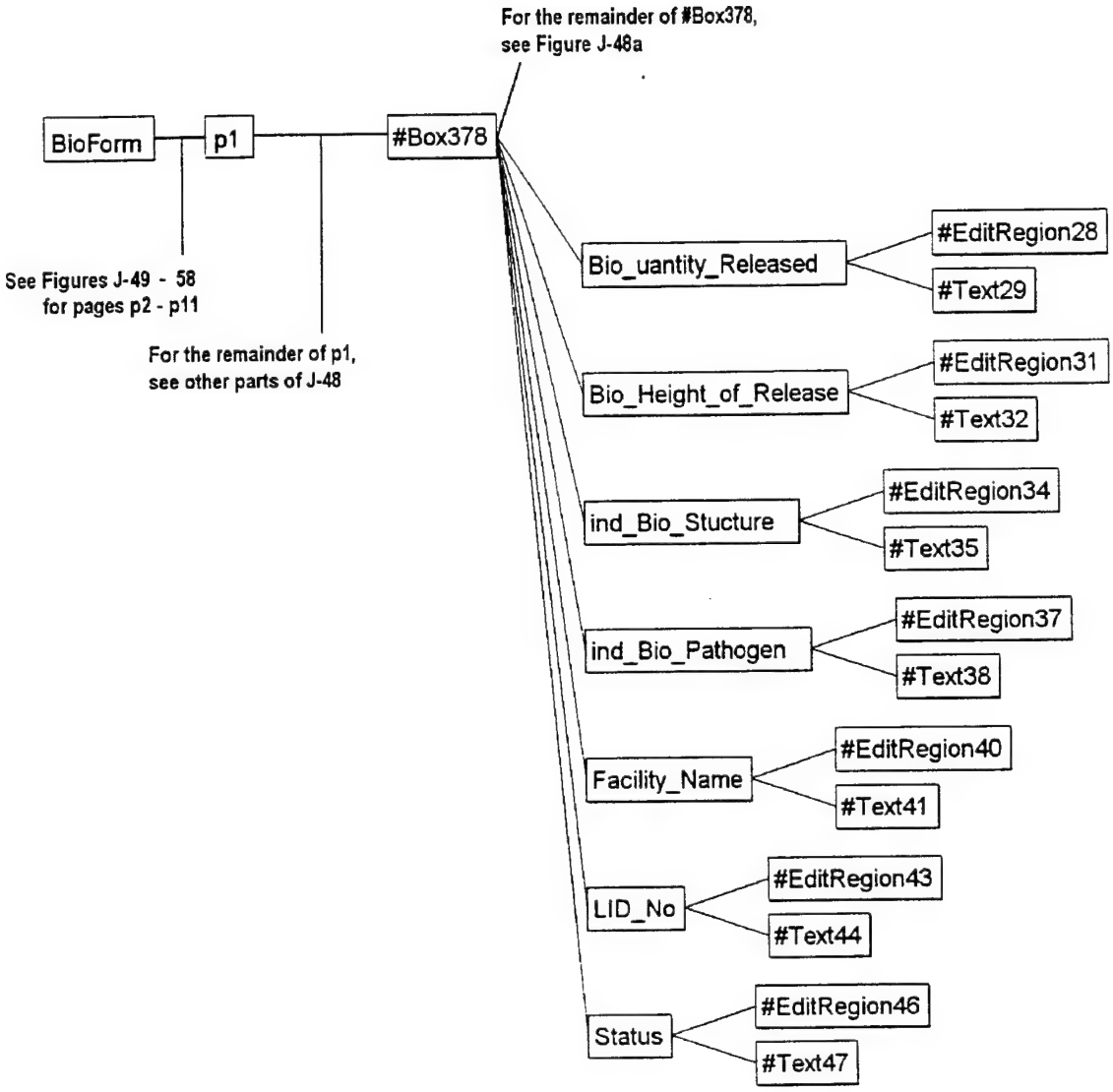
(a) First part

Figure J-48. BIO form object tree page 1.



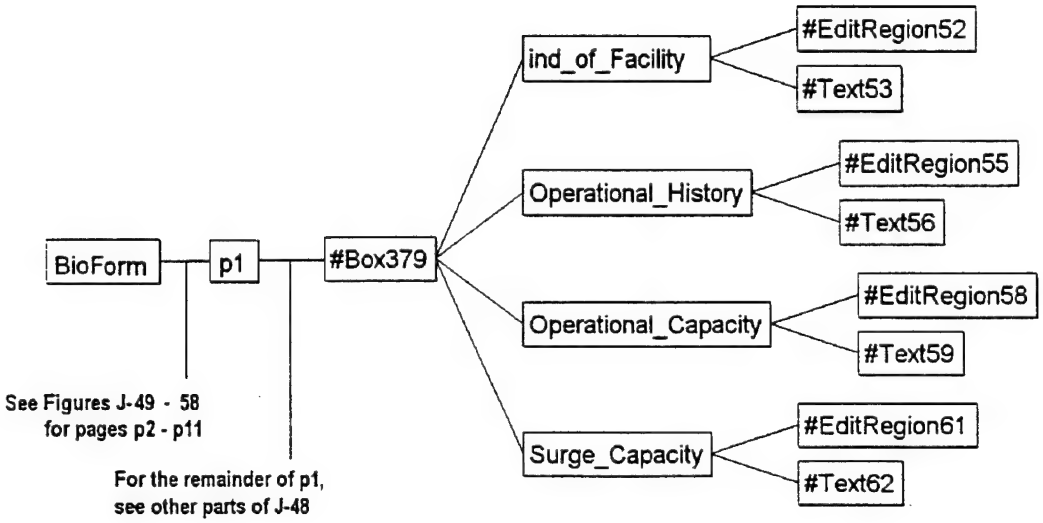
(b) Second part

Figure J-48. BIO form object tree page 1 (Continued).



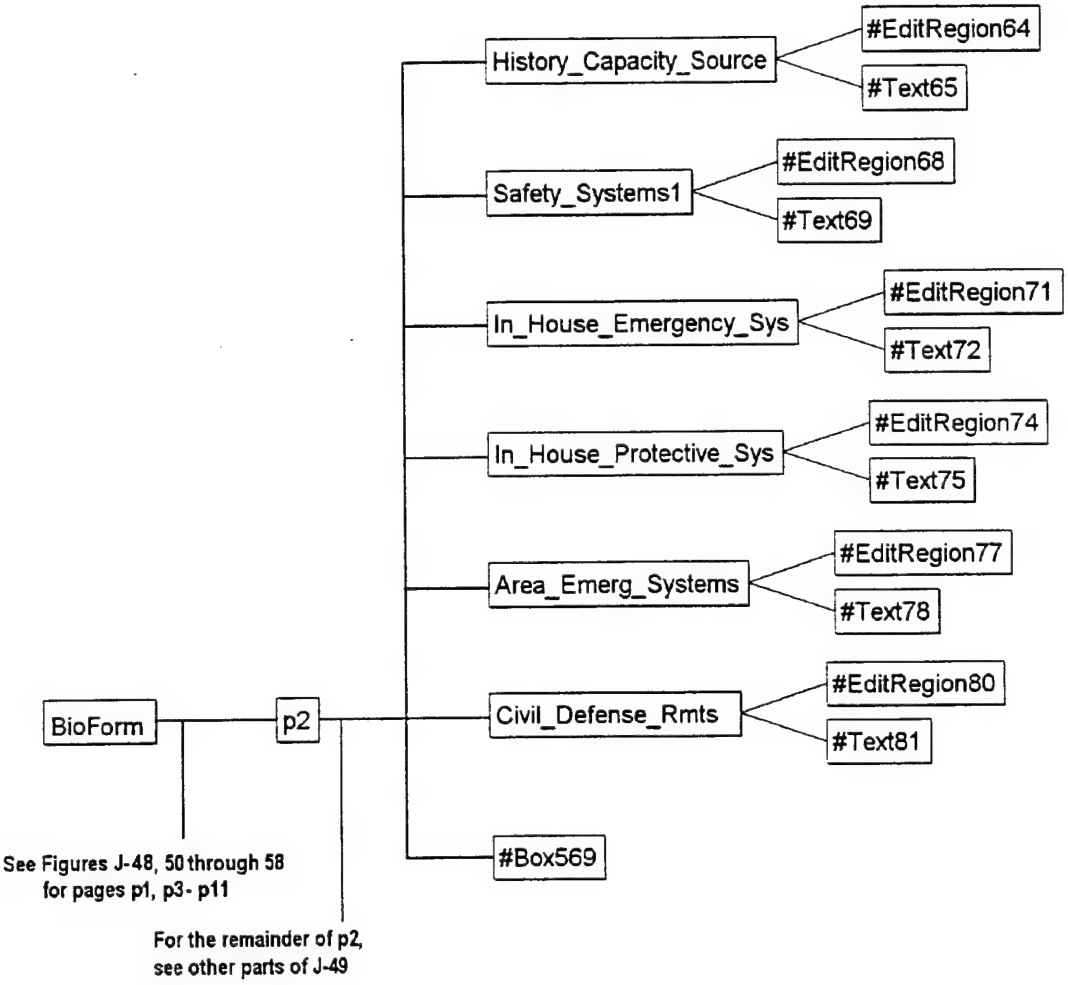
(c)Third part

Figure J-48. BIO form object tree page 1 (Continued).



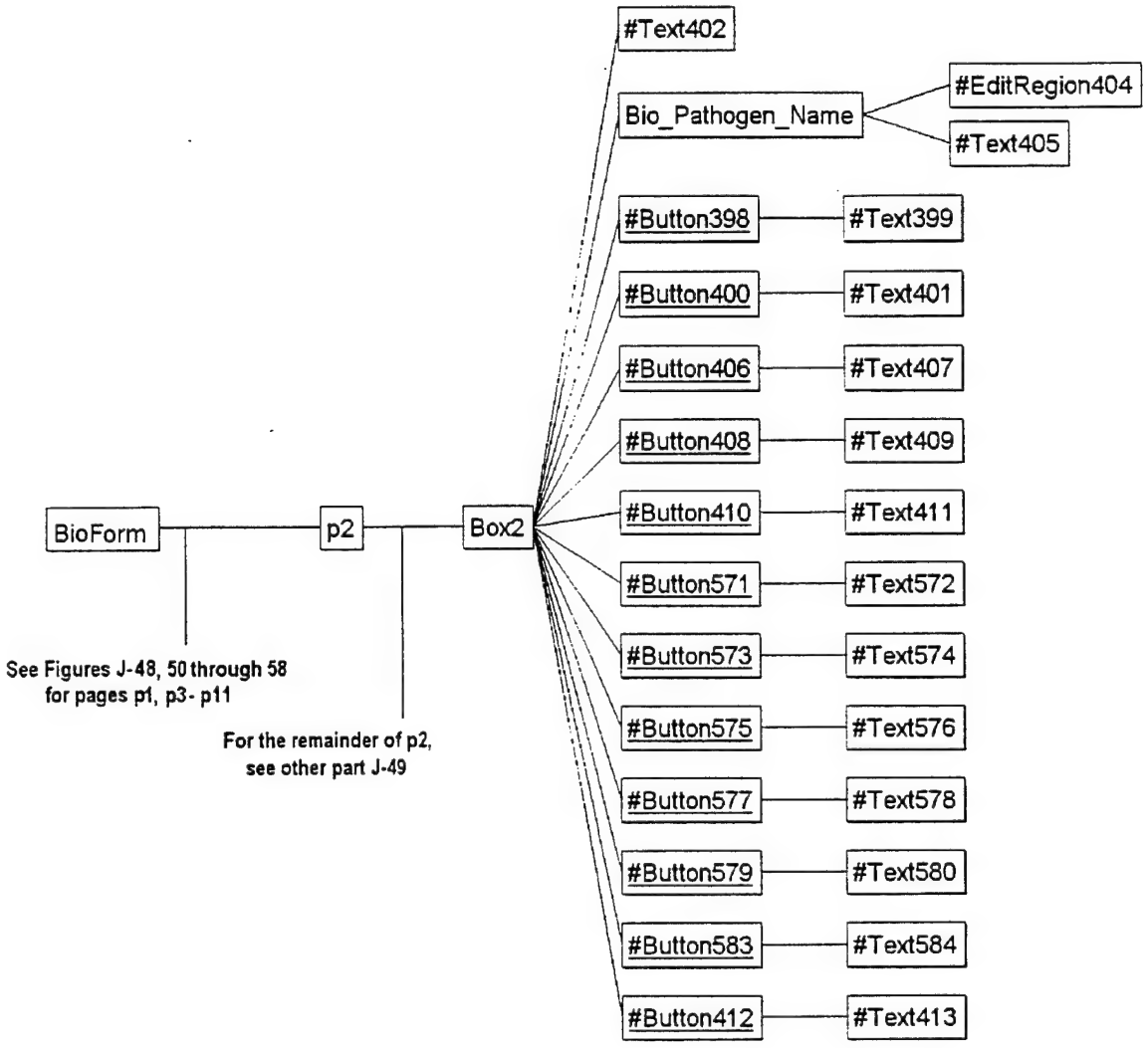
(d) Fourth part

Figure J-48. BIO form object tree page 1 (Continued).



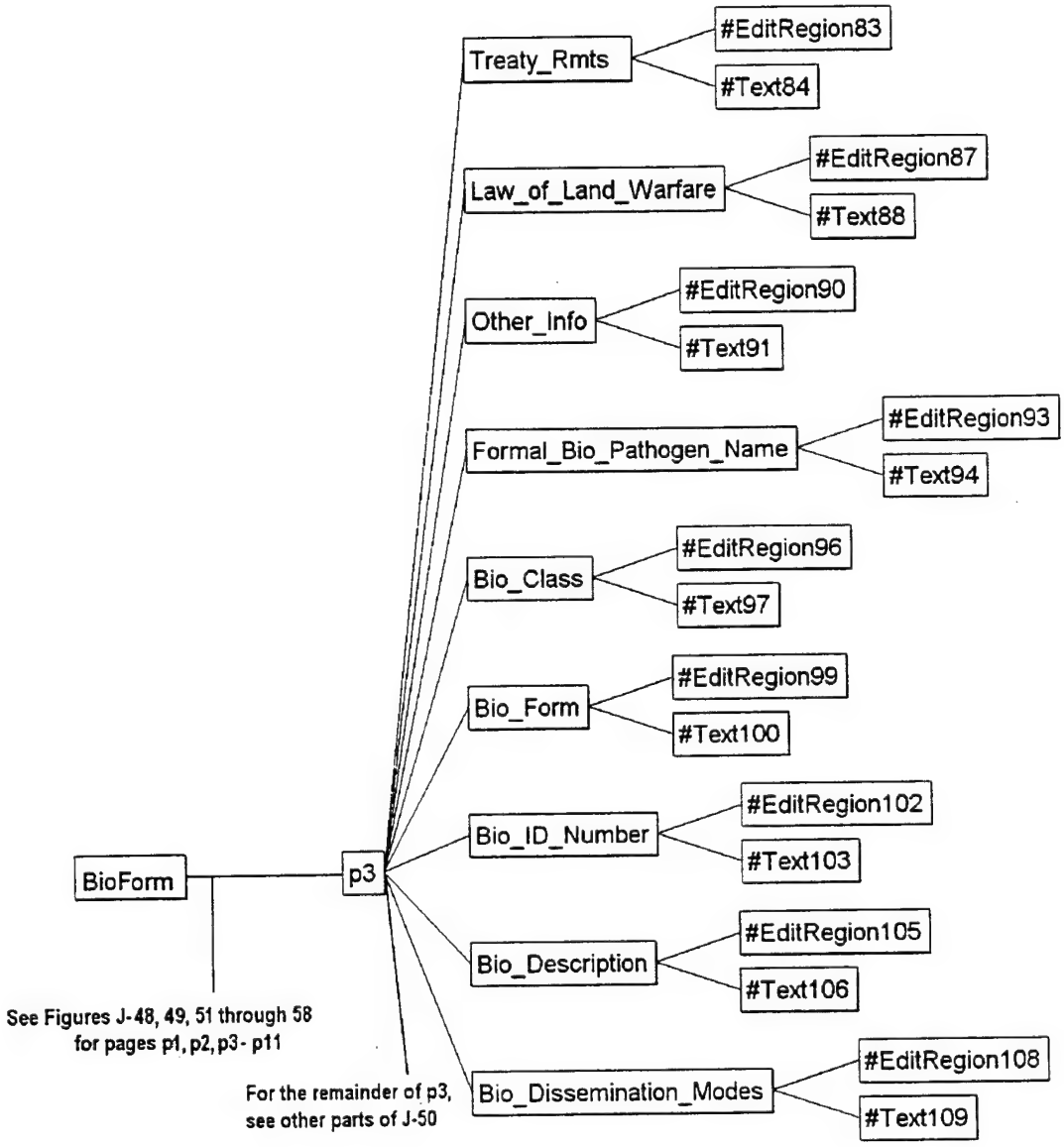
(a) First part

Figure J-49. BIO form object tree page 2.



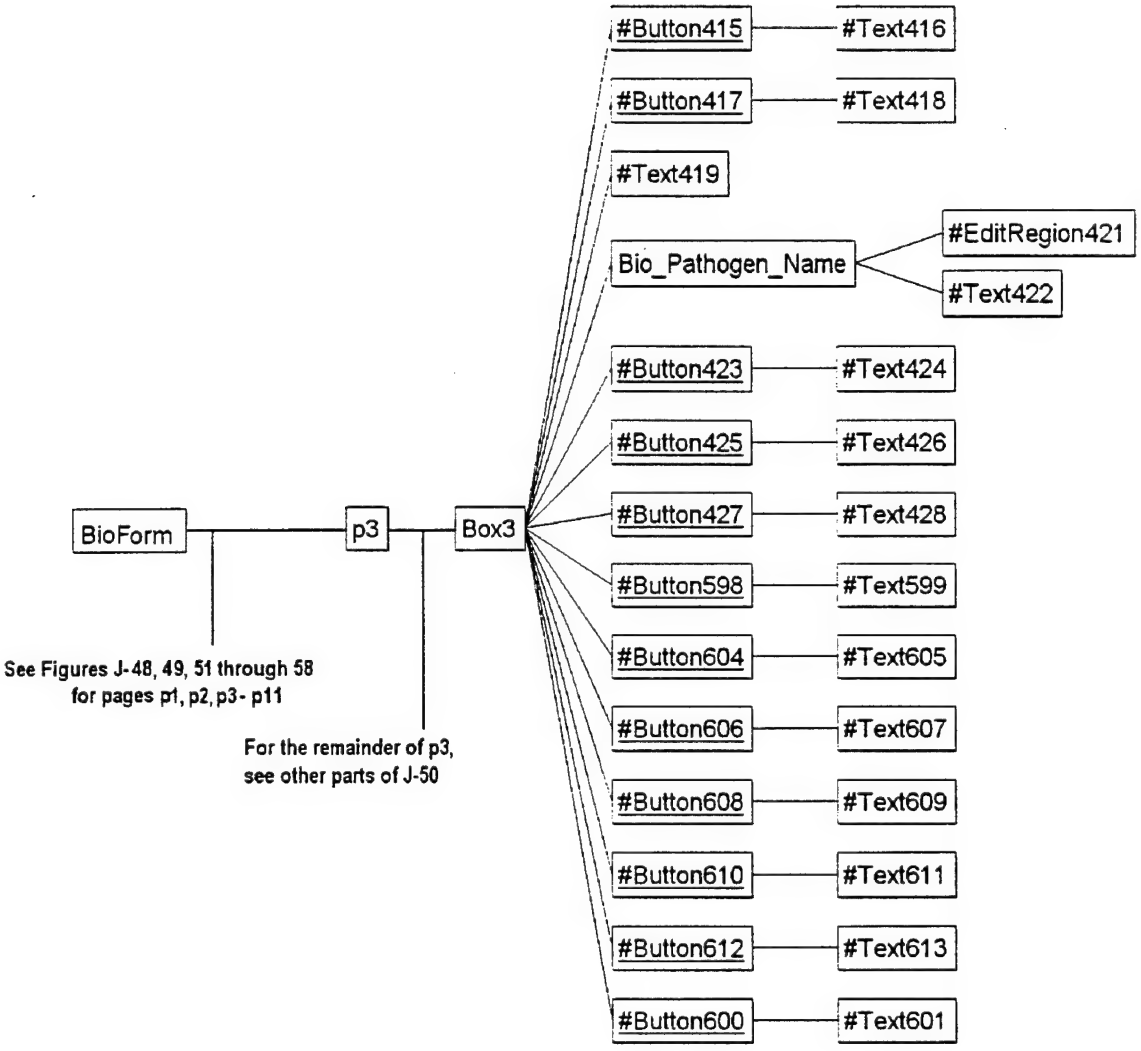
(b) Second part

Figure J-49. BIO form object tree page 2 (Continued).



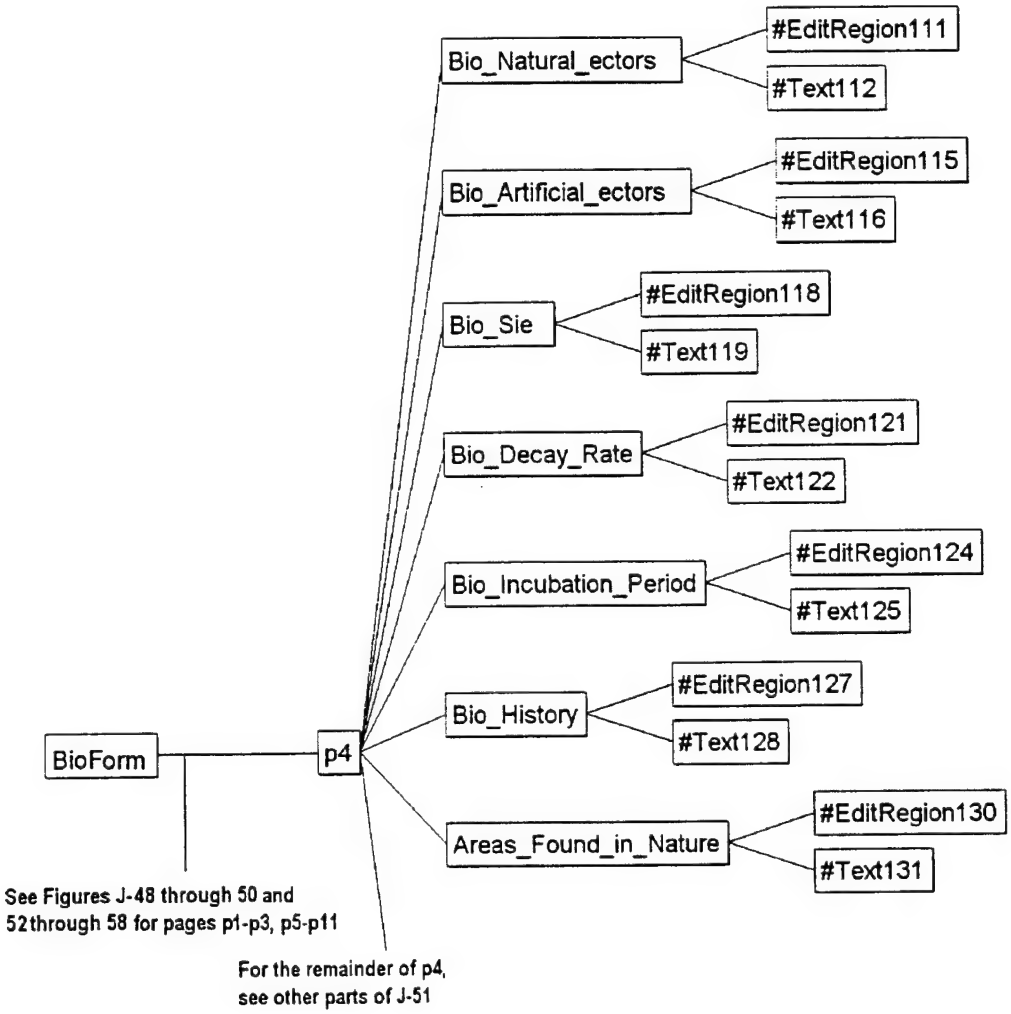
(a) First part

Figure J-50. BIO form object tree page 3.



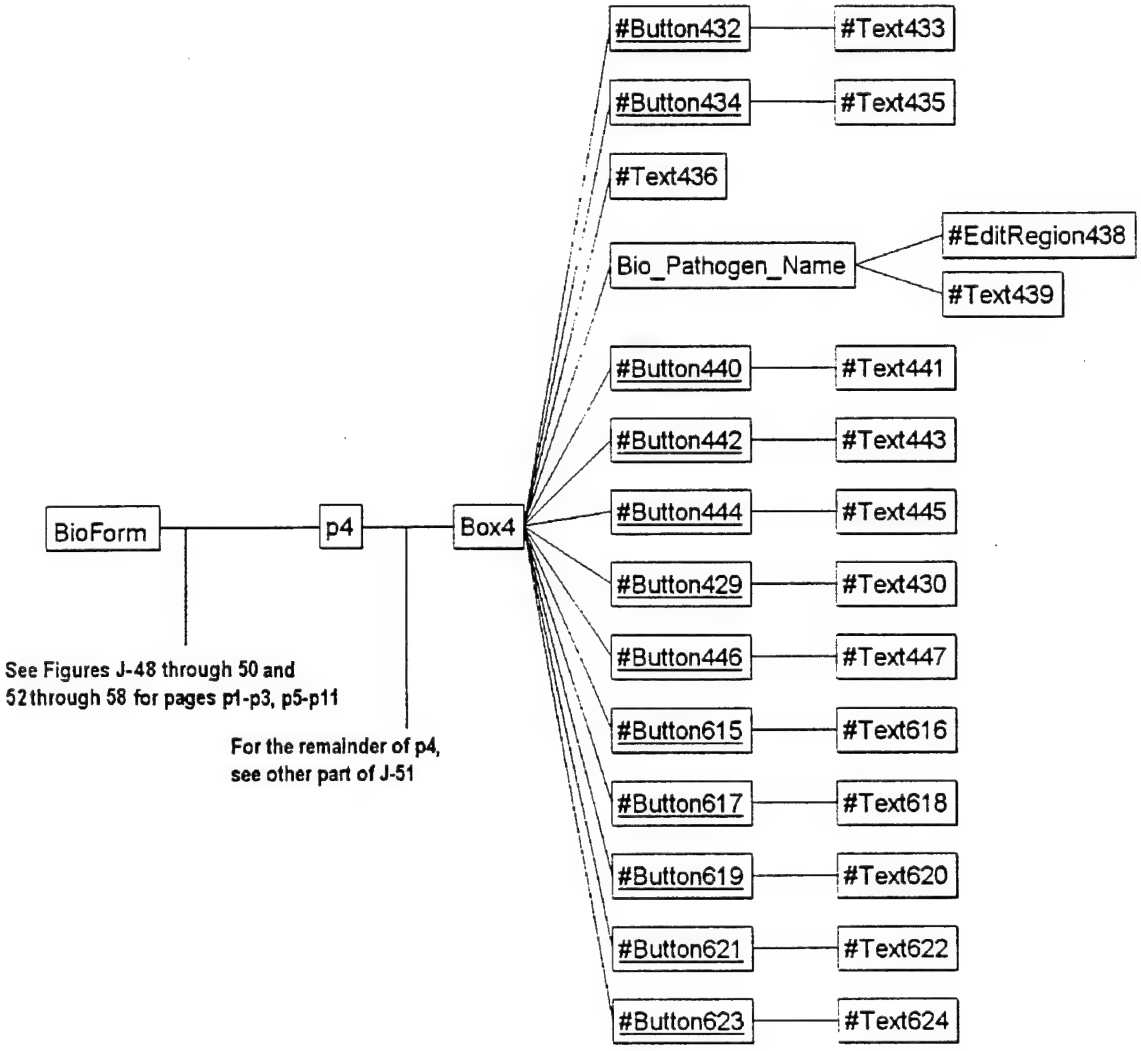
(b) Second part

Figure J-50. BIO form object tree page 3 (Continued).



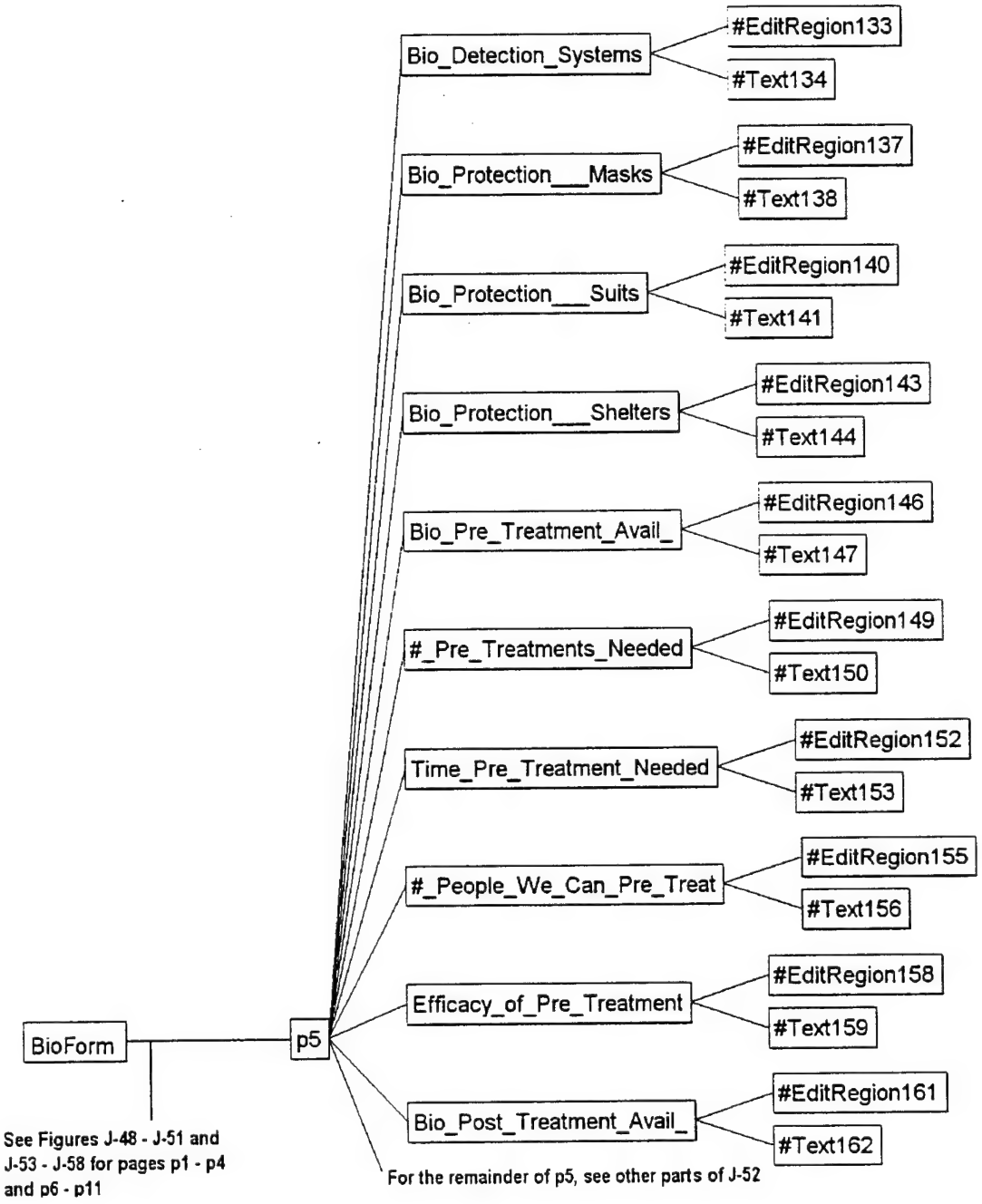
(a) First part

Figure J-51. BIO form object tree page 4.



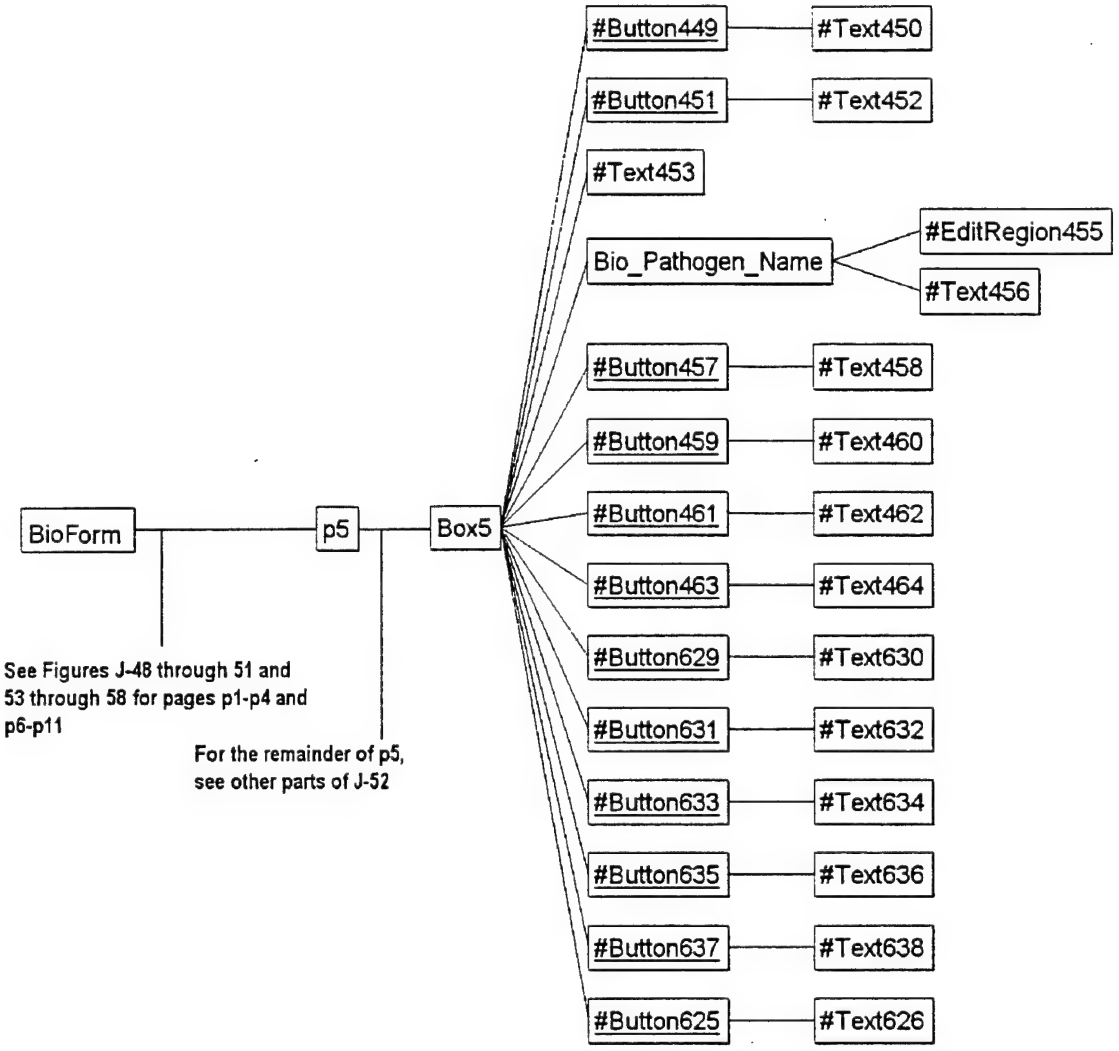
(b) Second part

Figure J-51. BIO form object tree page 4 (Continued).



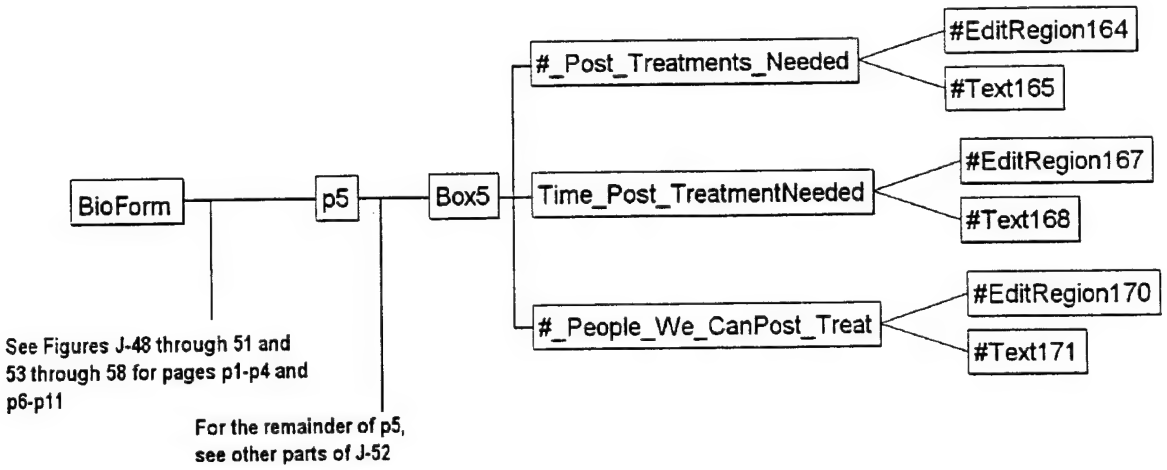
(a) First part

Figure J-52. BIO form object tree page 5.



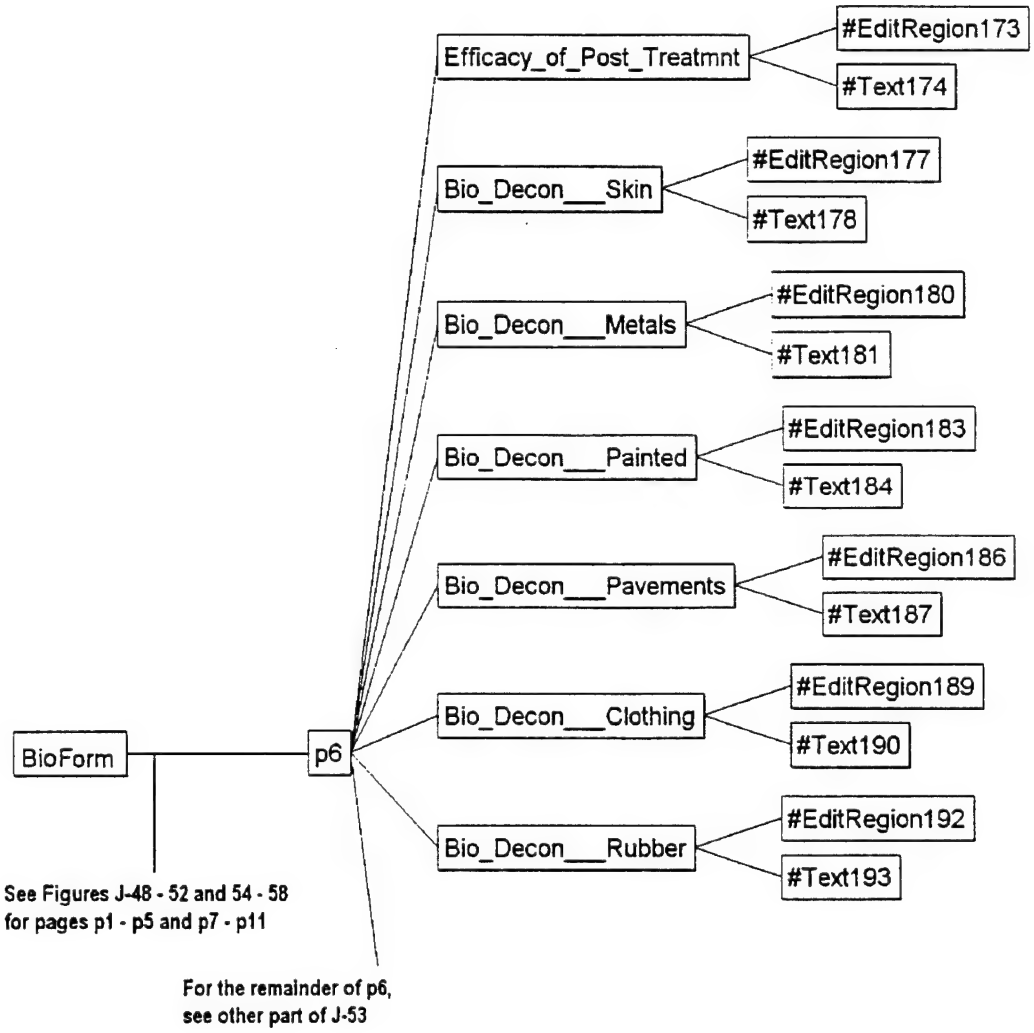
(b) Second part

Figure J-52. BIO form object tree page 5 (Continued).



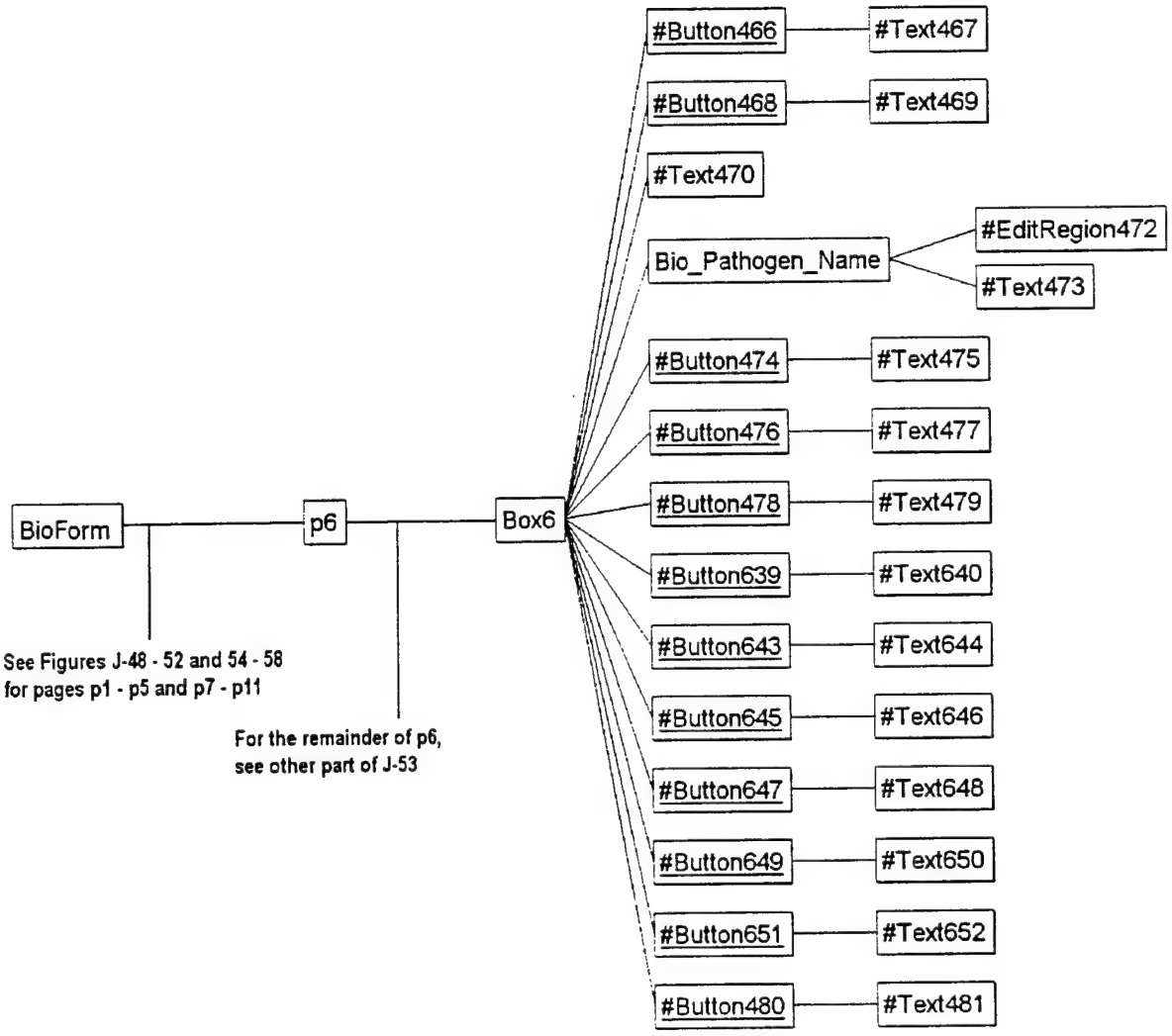
(c) Third part

Figure J-52. BIO form object tree page 5 (Continued).



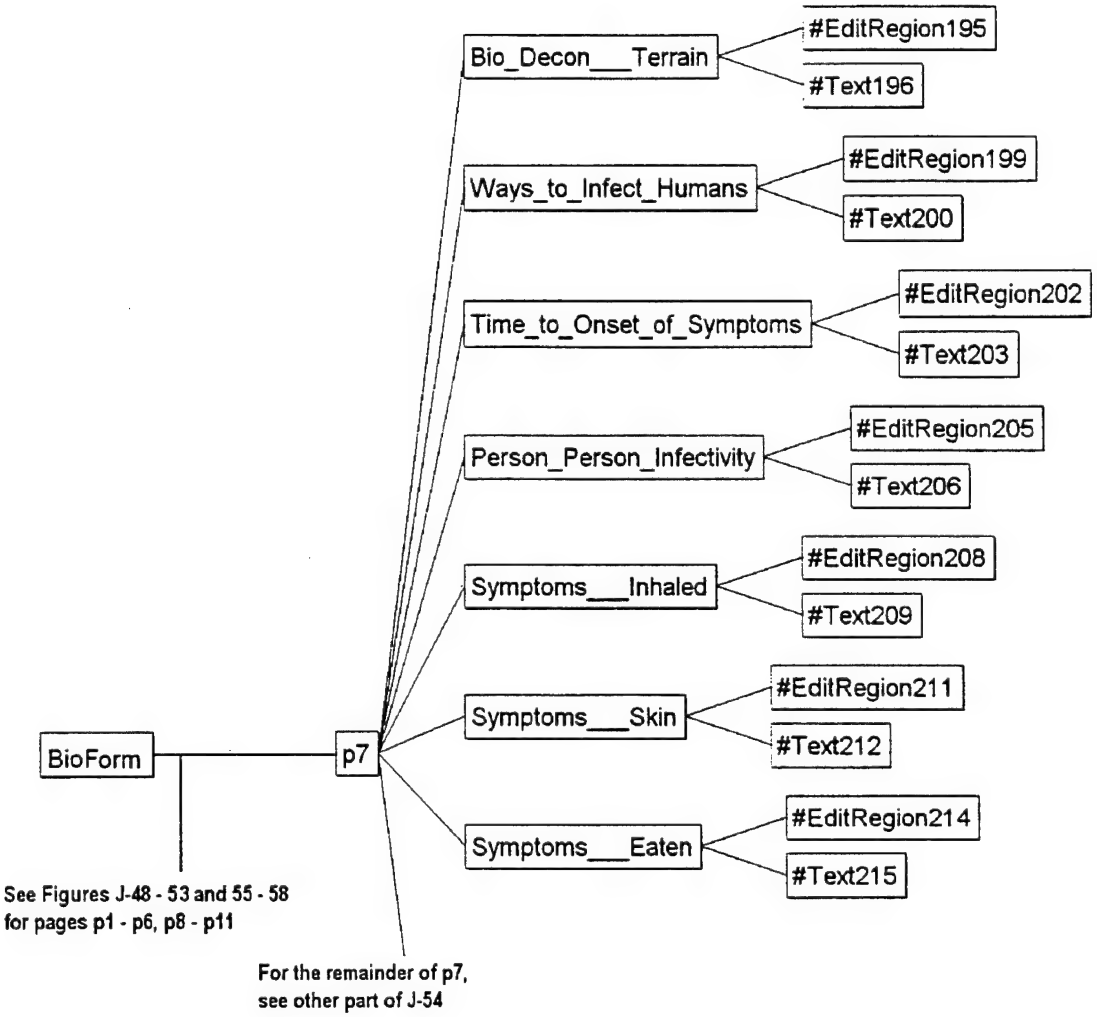
(a) First part

Figure J-53. BIO form object tree page 6.



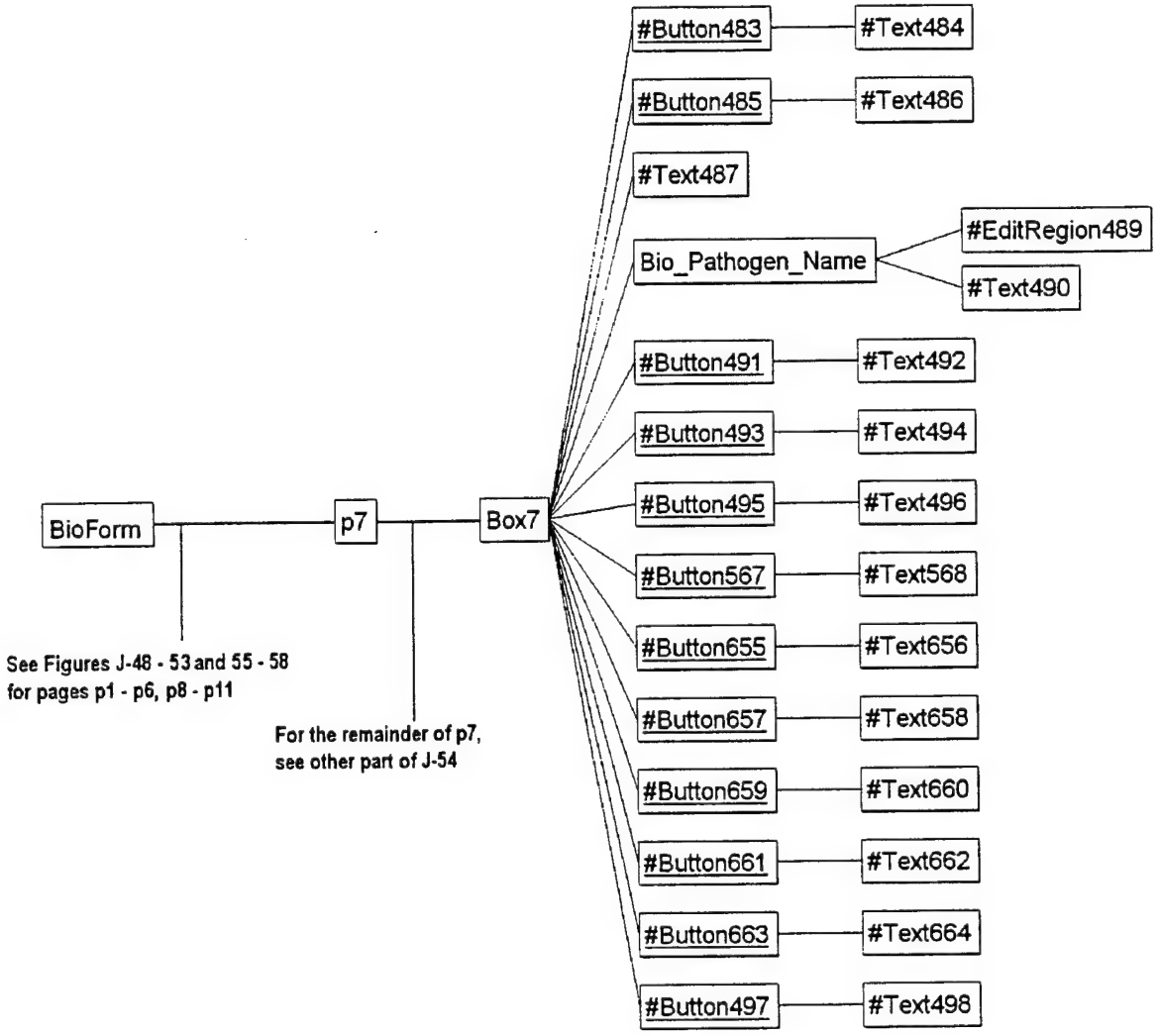
(b) Second part

Figure J-53. BIO form object tree page 6 (Continued).



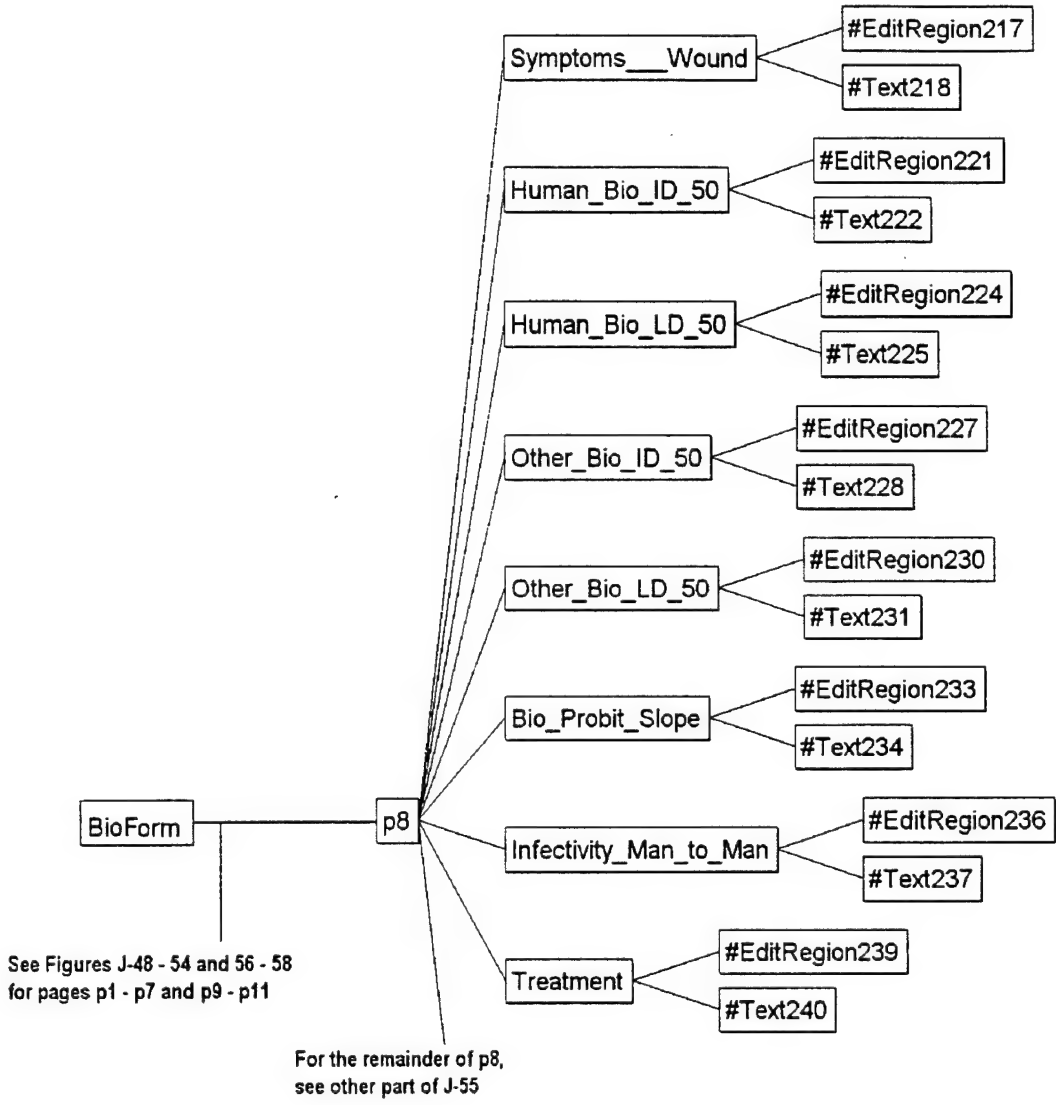
(a) First part

Figure J-54. BIO form object tree page 7.



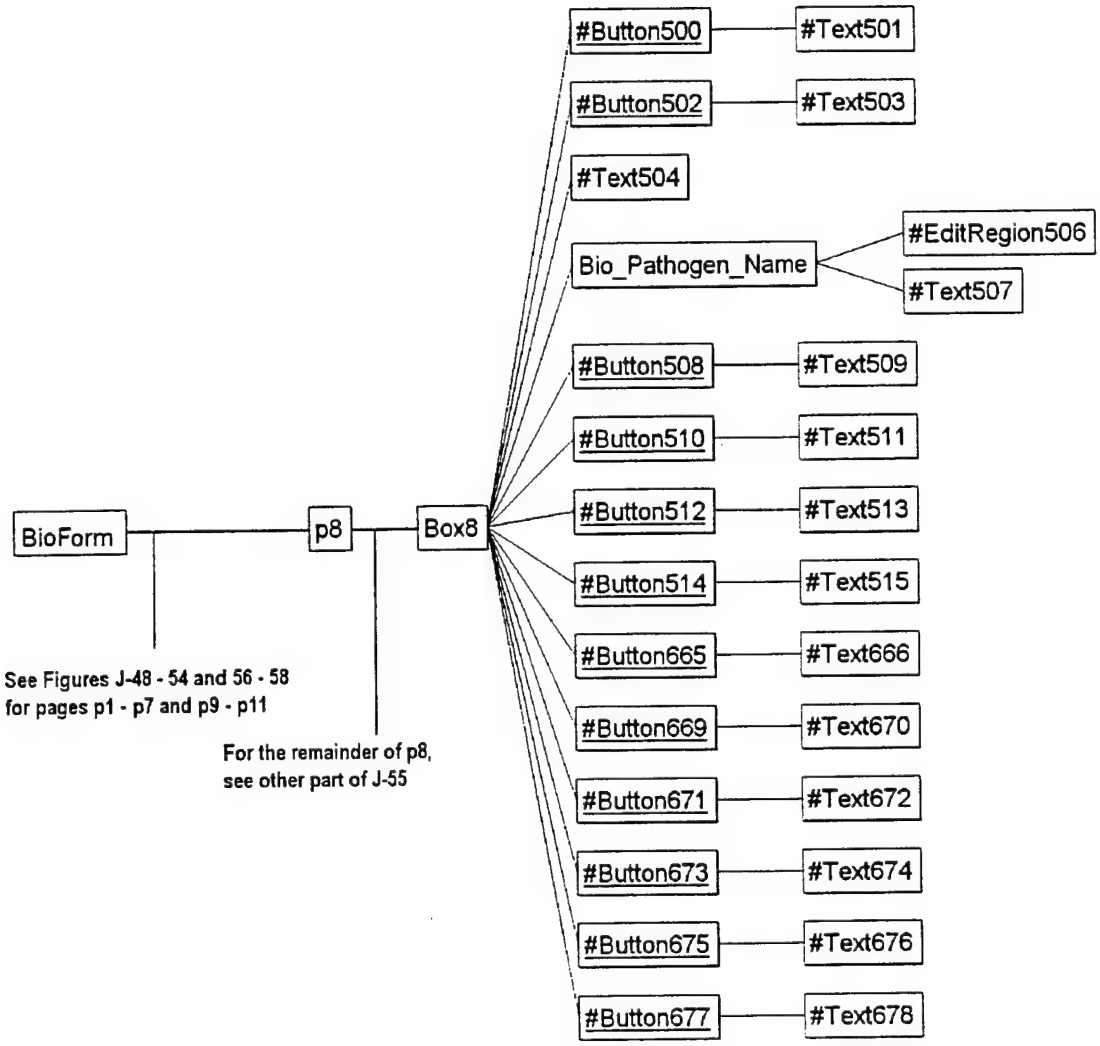
(b) Second part

Figure J-54. BIO form object tree page 7 (Continued).



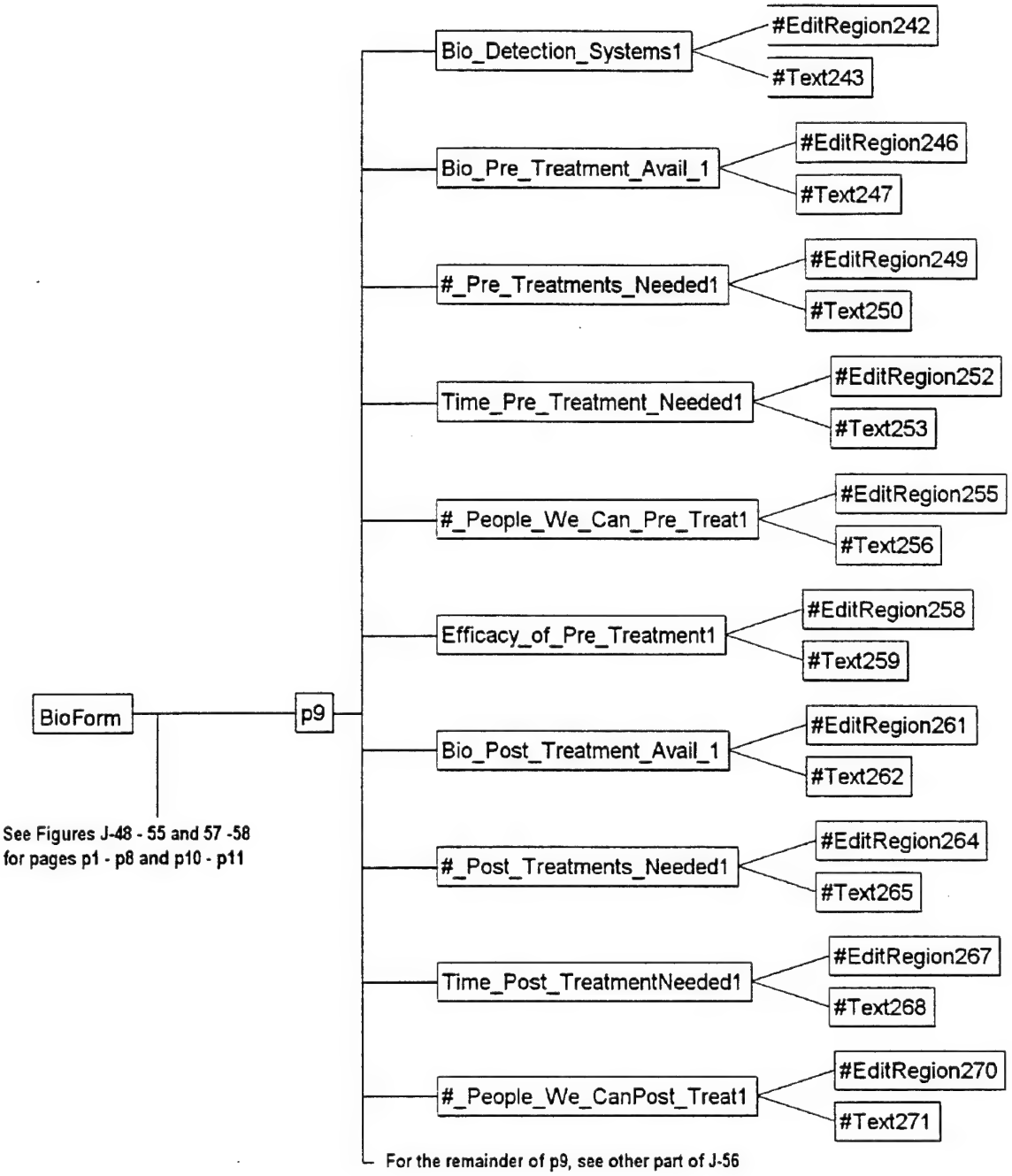
(a) First part

Figure J-55. BIO form object tree page 8.



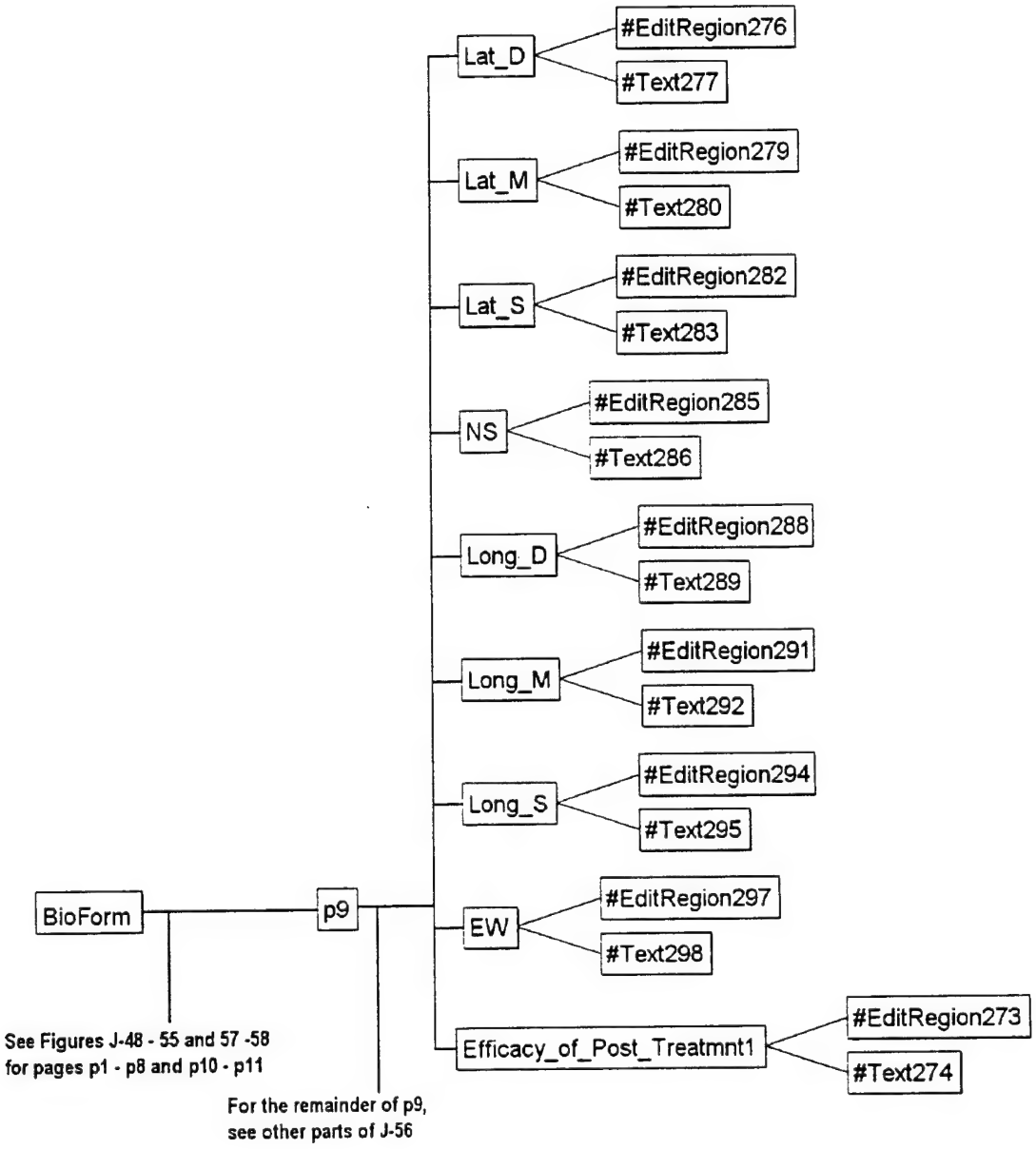
(b) Second part

Figure J-55. BIO form object tree page 8 (Continued).



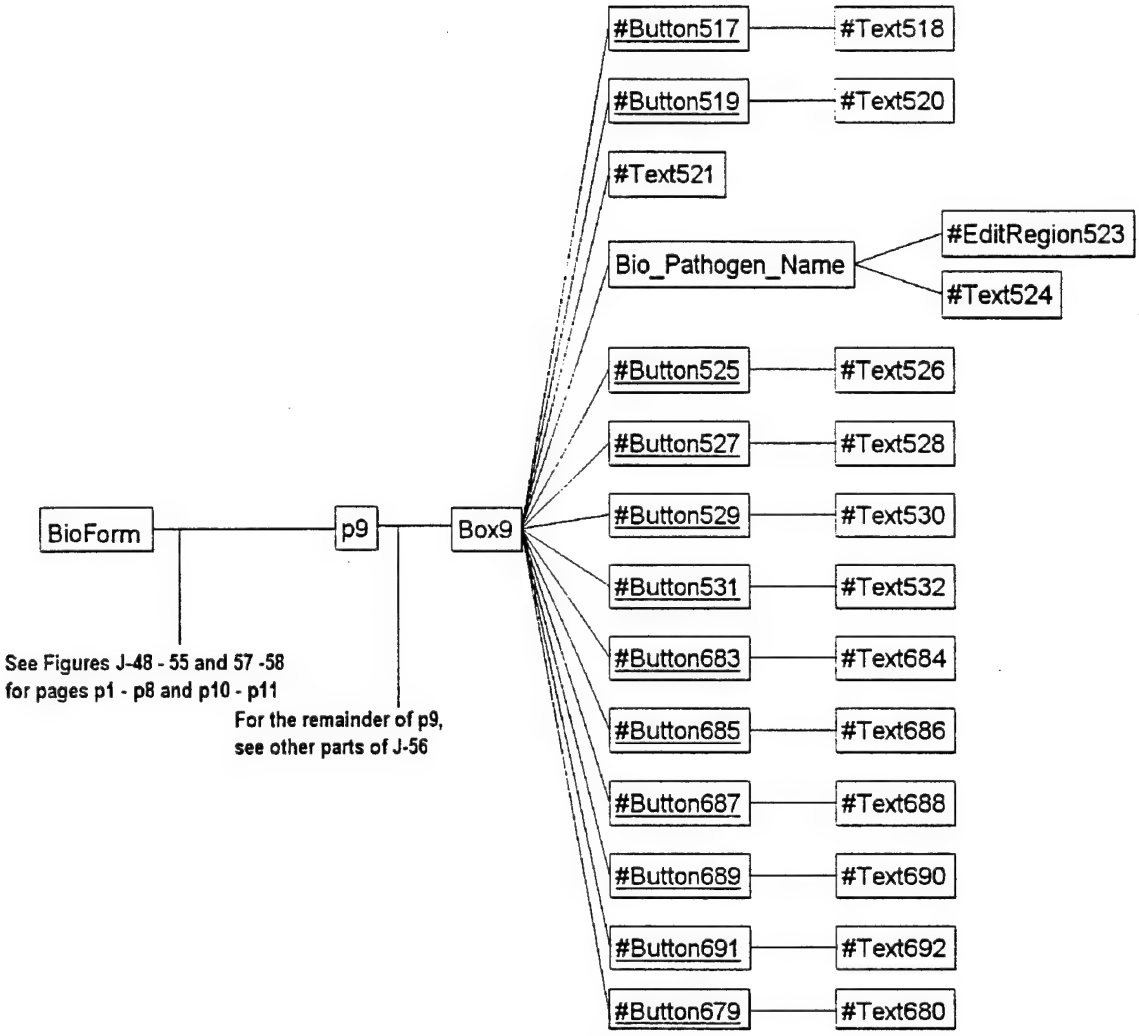
(a) First part

Figure J-56. BIO form object tree page 9.



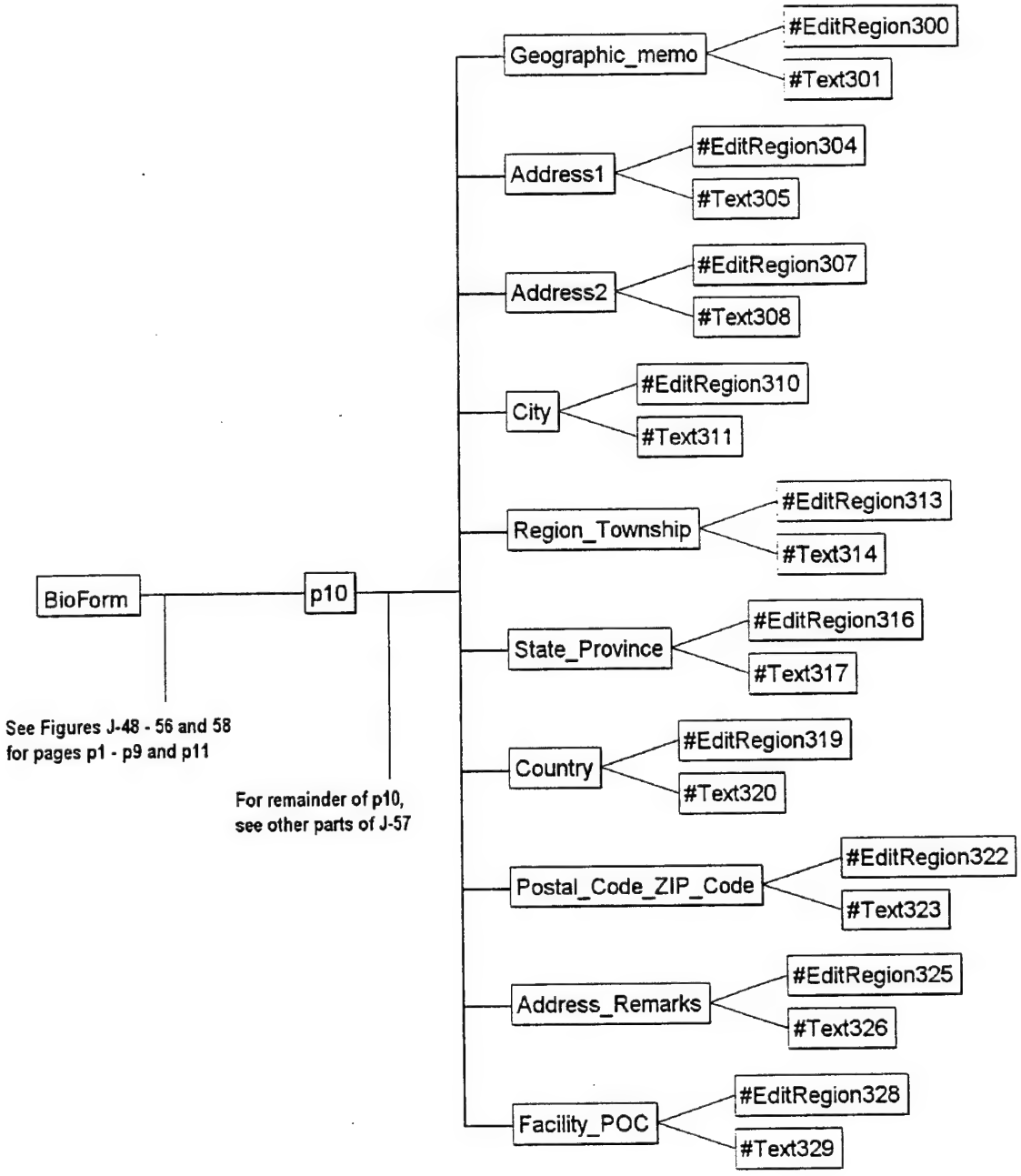
(b) Second part

Figure J-56. BIO form object tree page 9 (Continued).



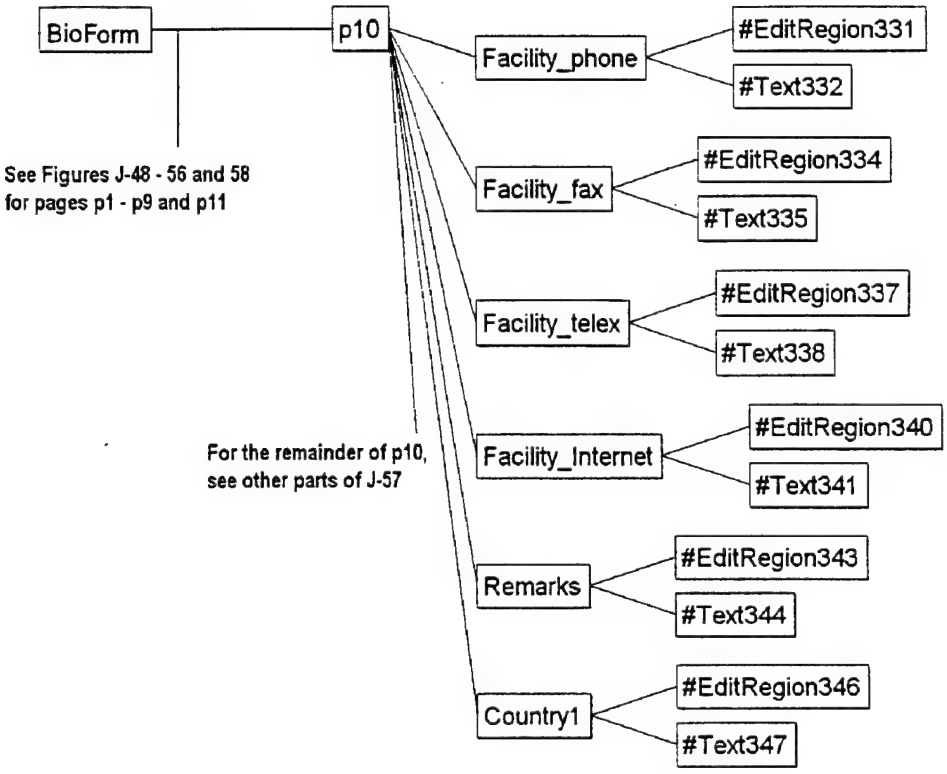
(c) Third part

Figure J-56. BIO form object tree page 9 (Continued).



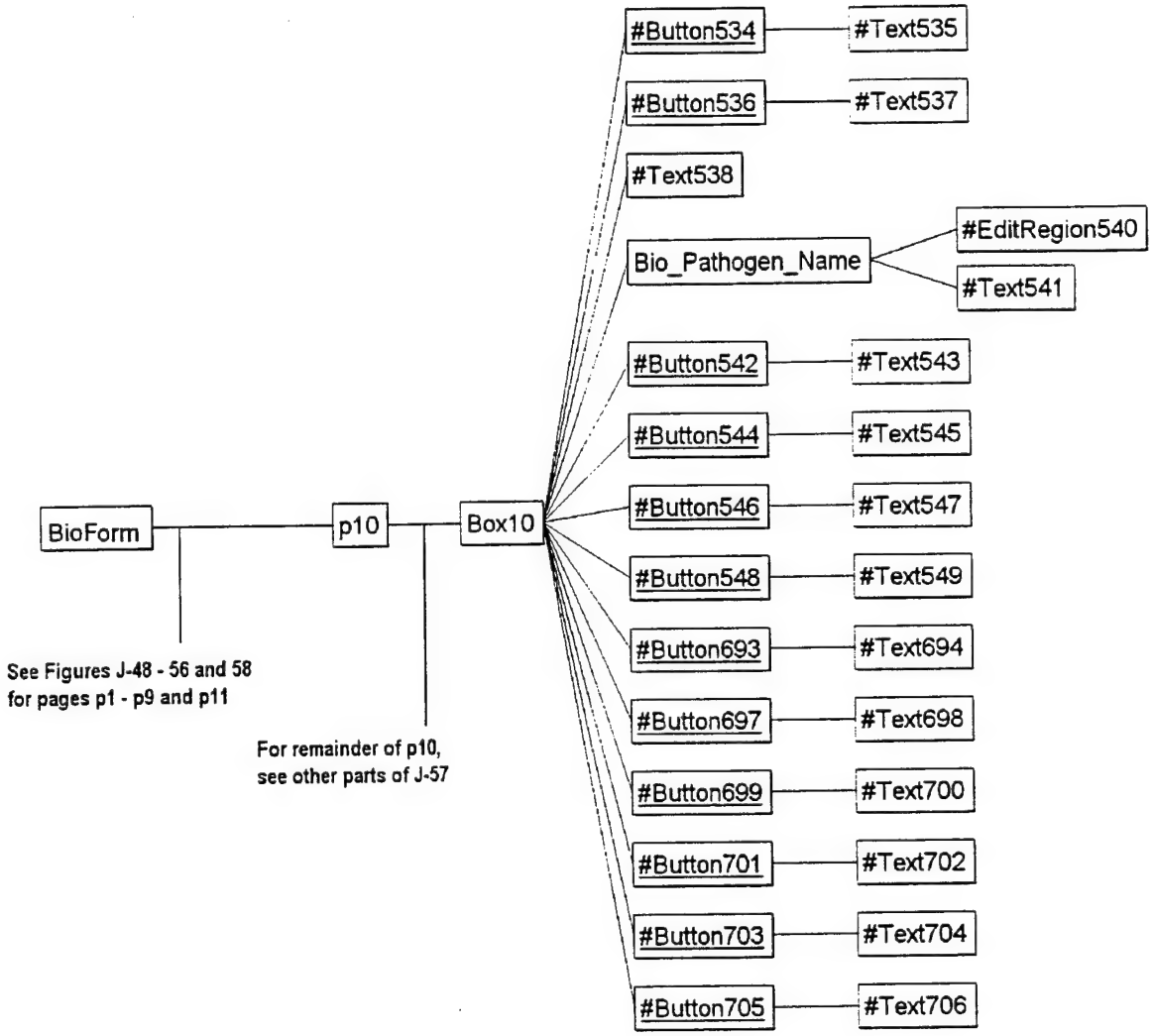
(a) First part

Figure J-57. BIO form object tree page 10.



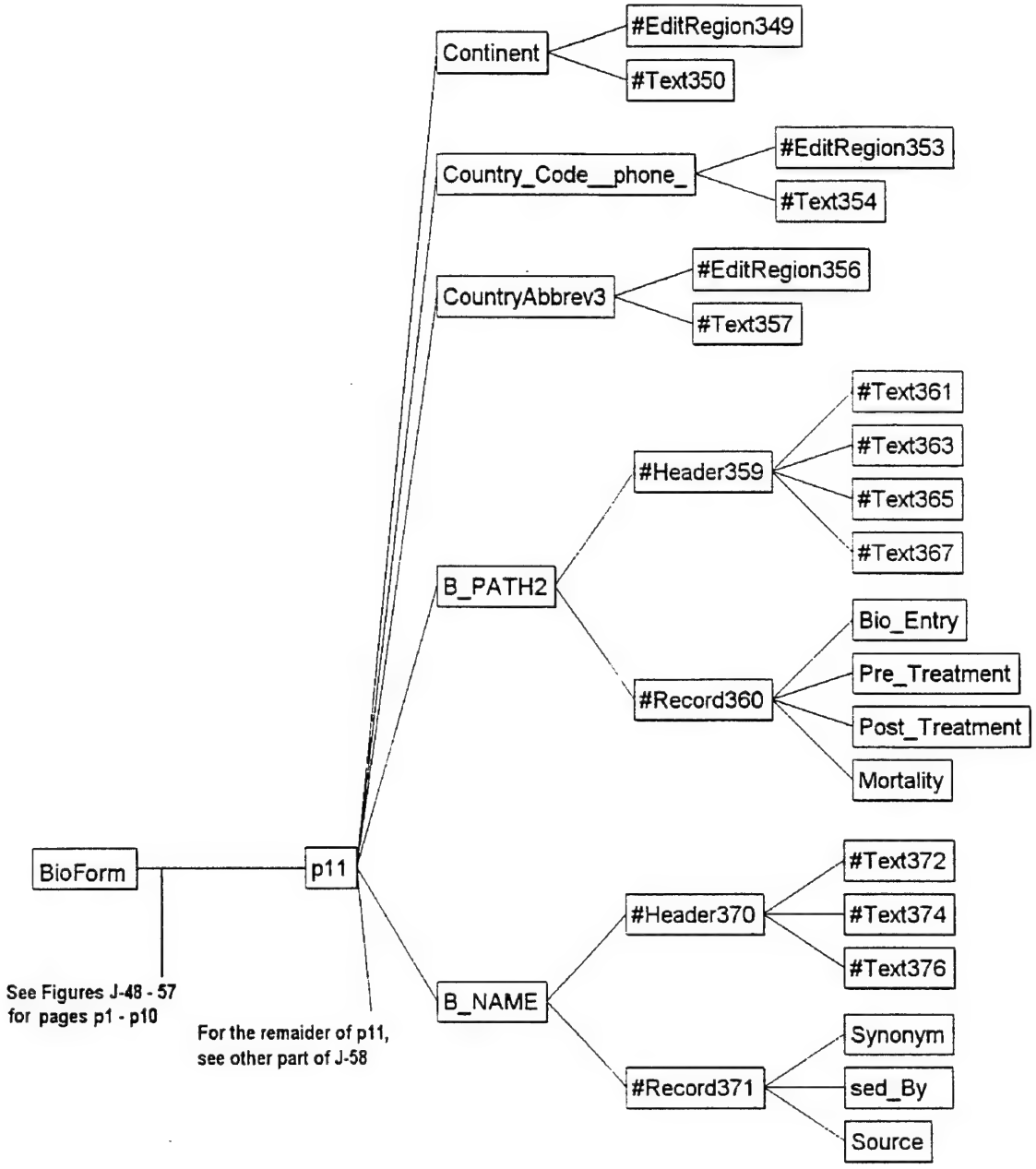
(b) Second part

Figure J-57. BIO form object tree page 10 (Continued).



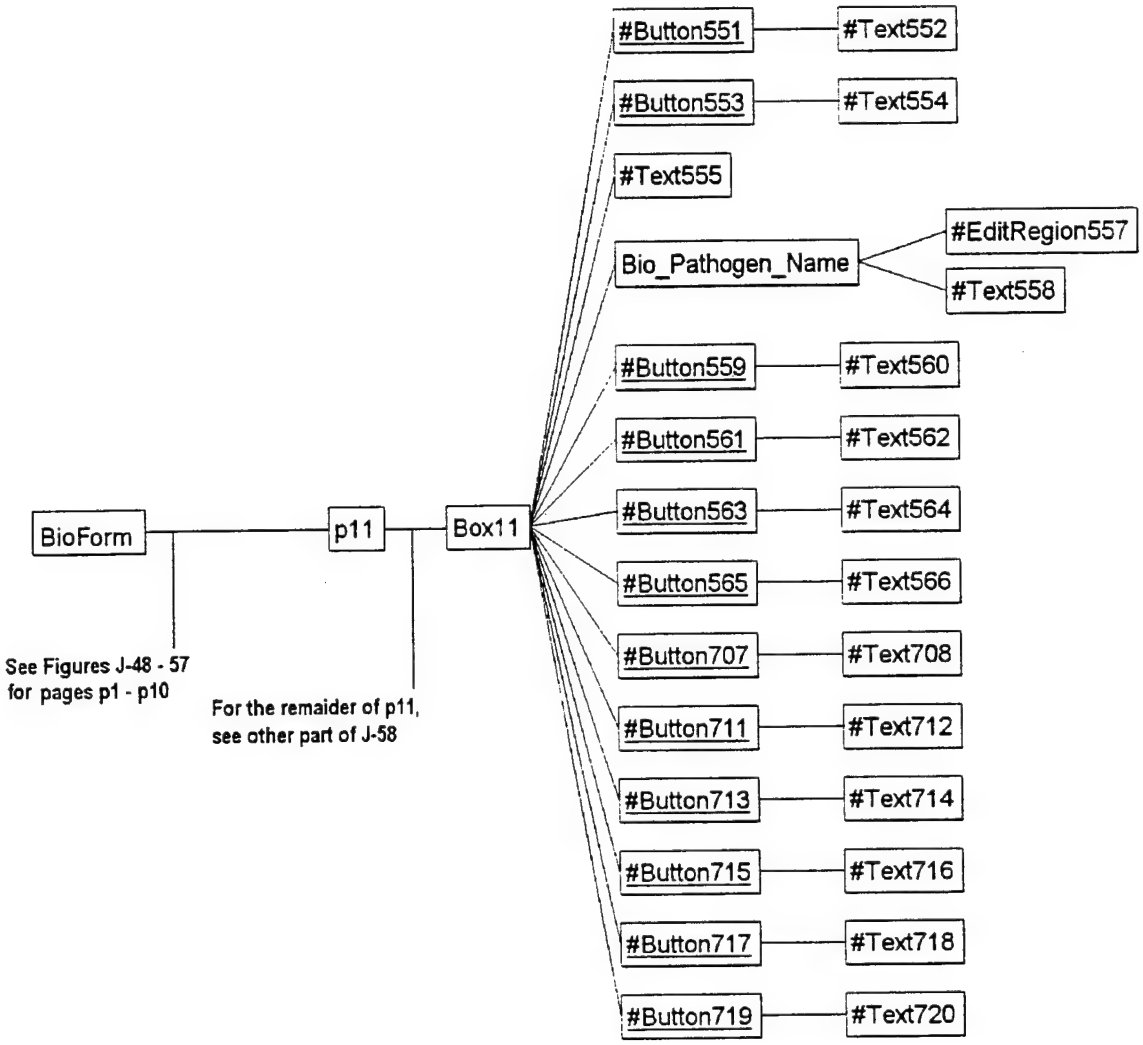
(c) Third part

Figure J-57. BIO form object tree page 10 (Continued).



(a) First part

Figure J-58. BIO form object tree page 11.



(b) Second part

Figure J-58. BIO form object tree page 11 (Continued).

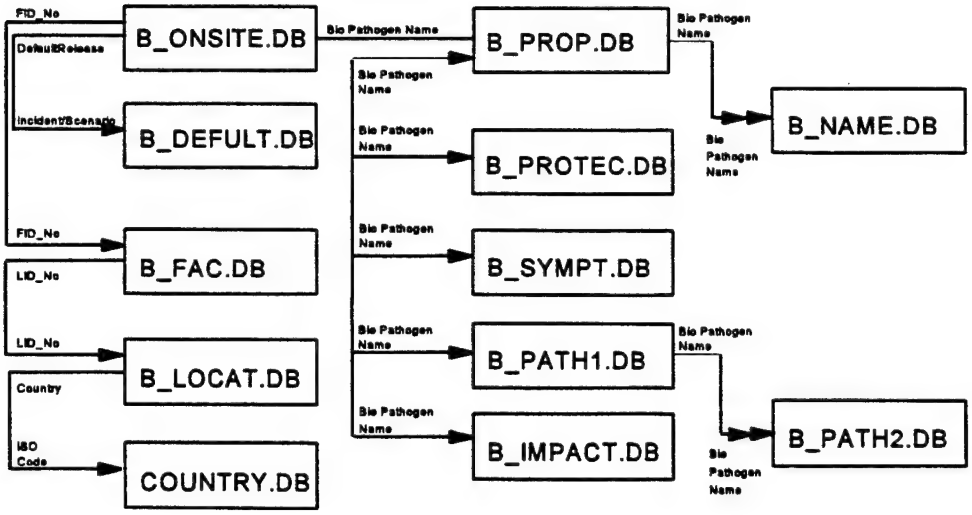


Figure J-59. BIO (BIO) form data model.

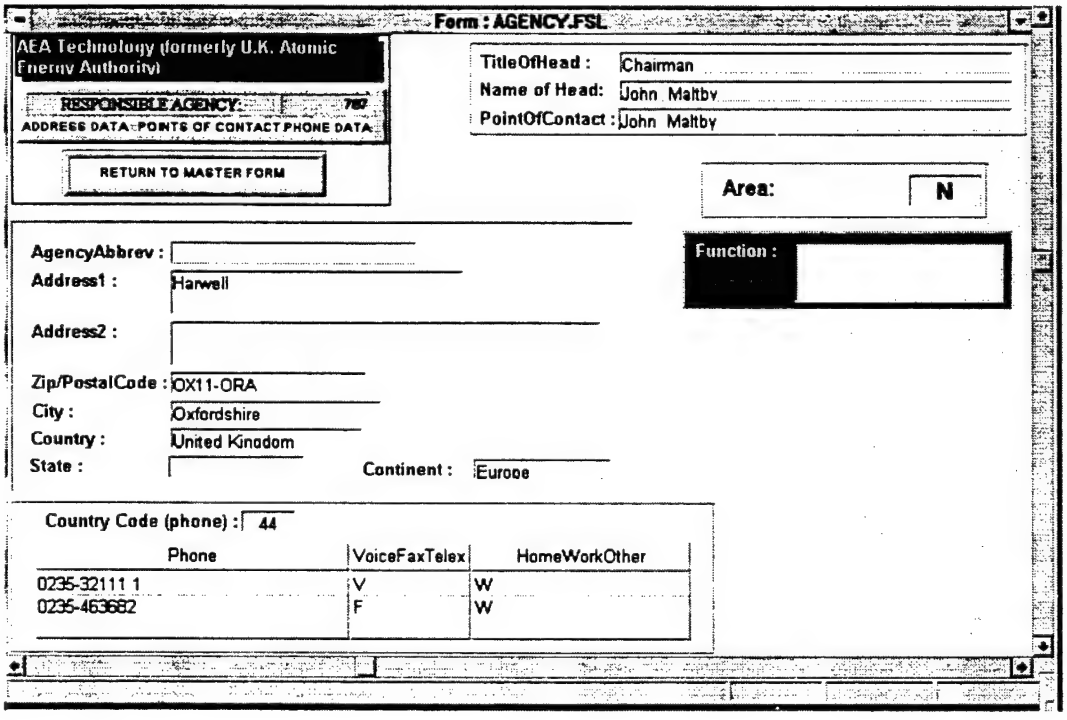
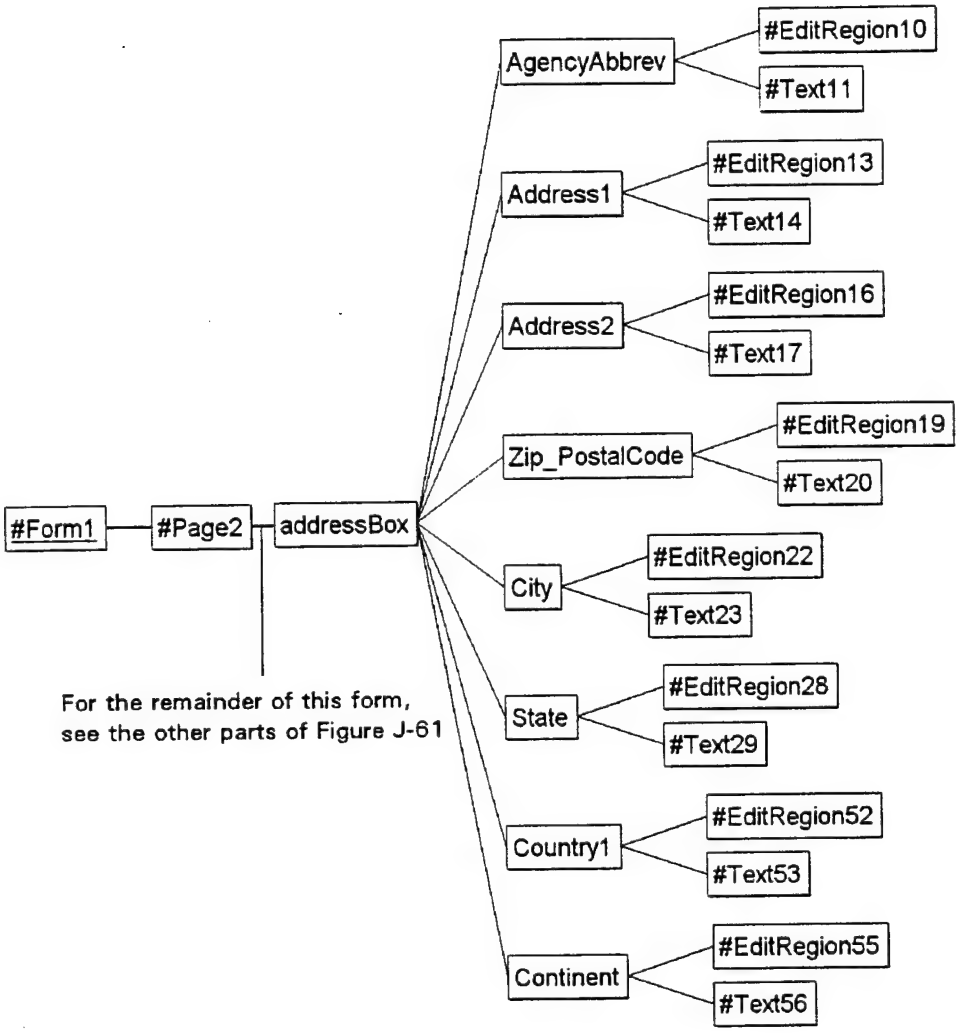
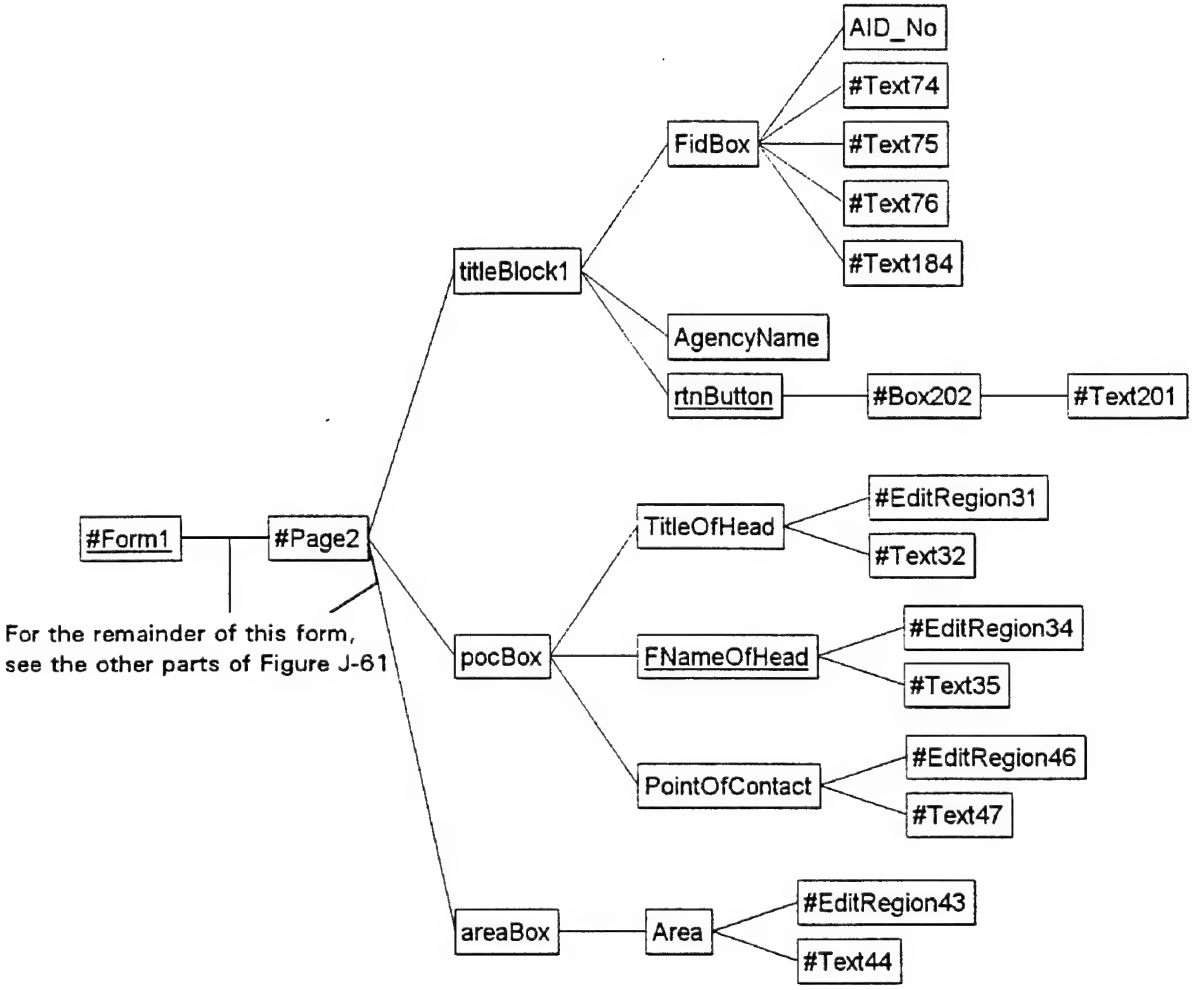


Figure J-60. AGENCY form screen.



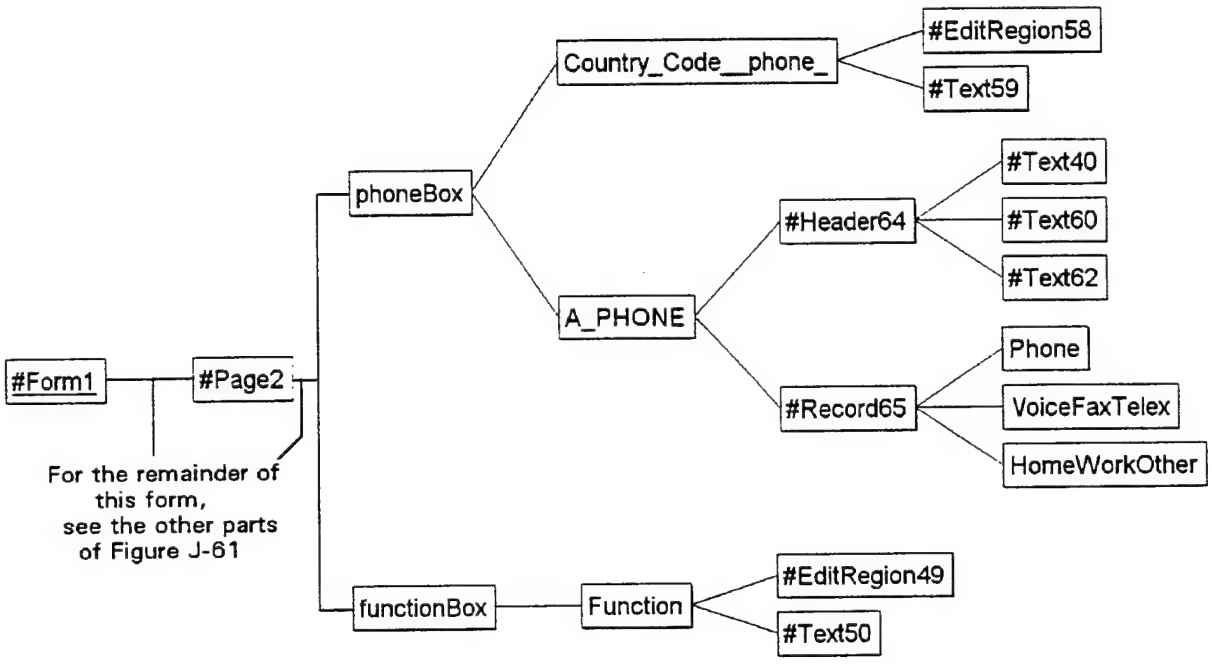
(a) First part

Figure J-61. AGENCY form object tree.



(b) Second part

Figure J-61. AGENCY form object tree (Continued).



(c) Third part

Figure J-61. AGENCY form object tree (Continued).

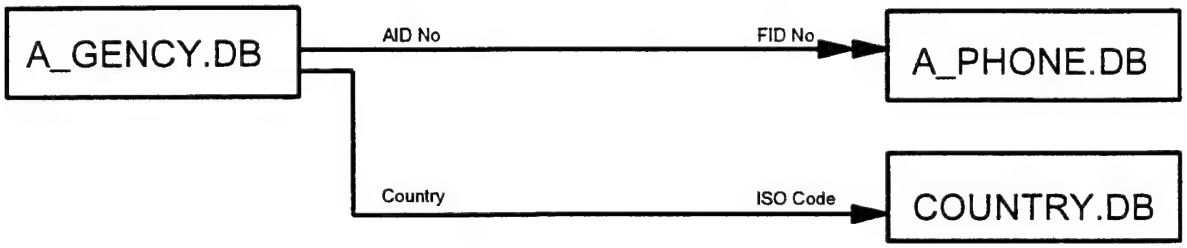


Figure J-62. AGENCY (AGENCY) form data model.

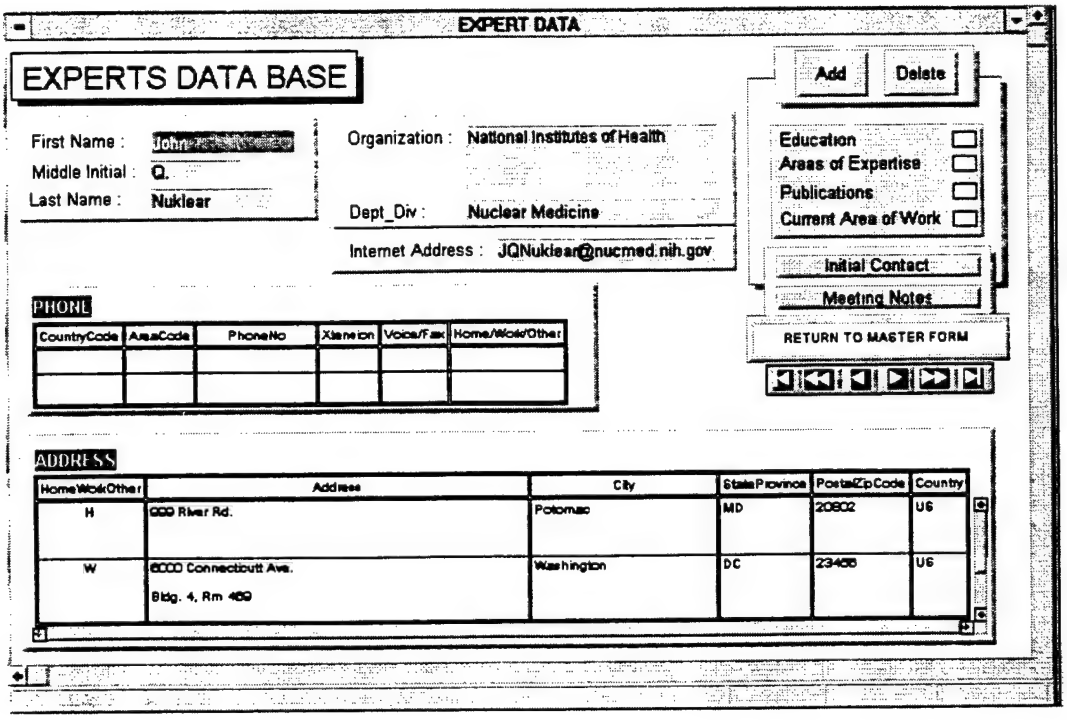


Figure J-63. EXPERTS screen page 1.

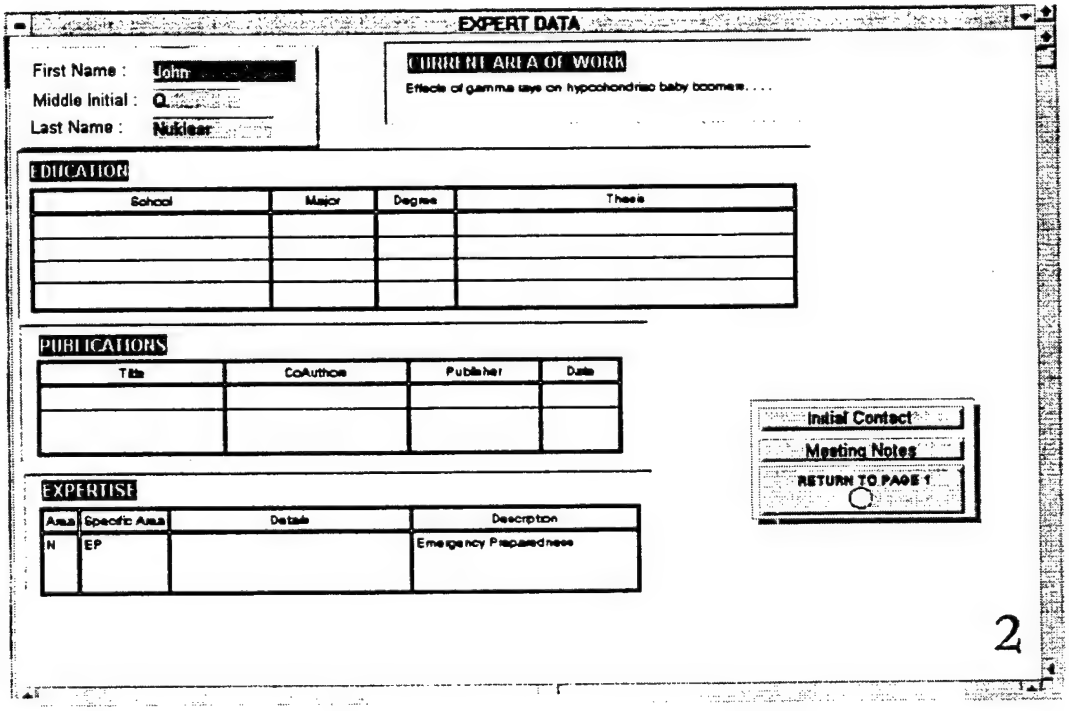


Figure J-64. EXPERTS screen page 2.

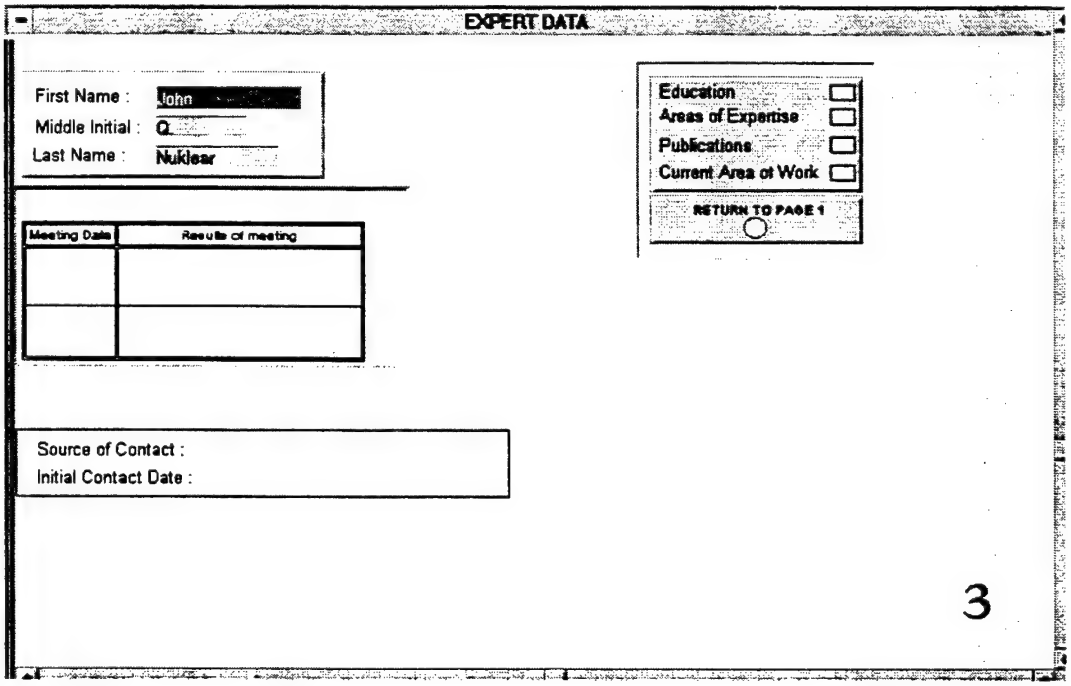


Figure J-65. EXPERTS screen page 3.

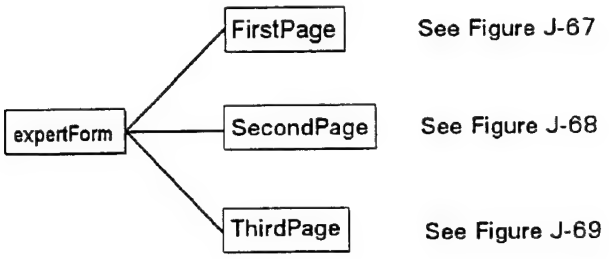
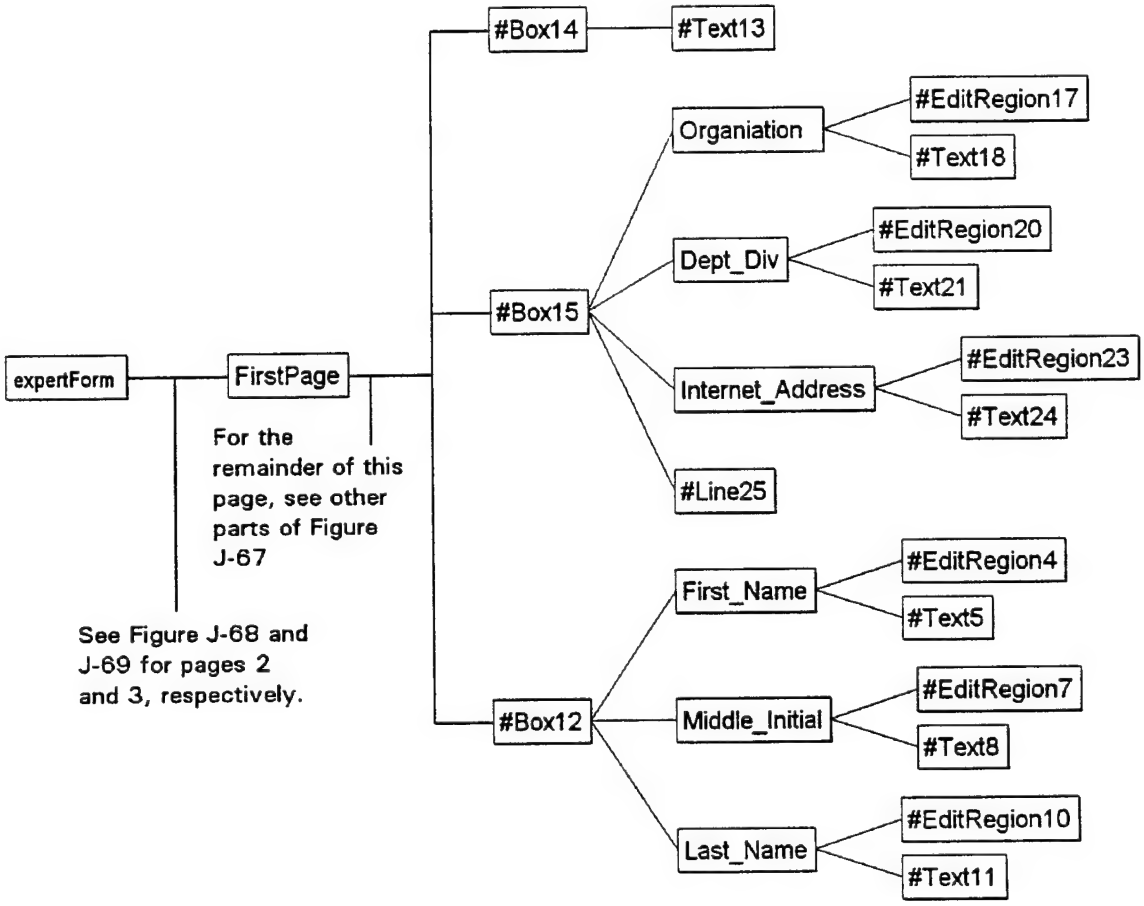
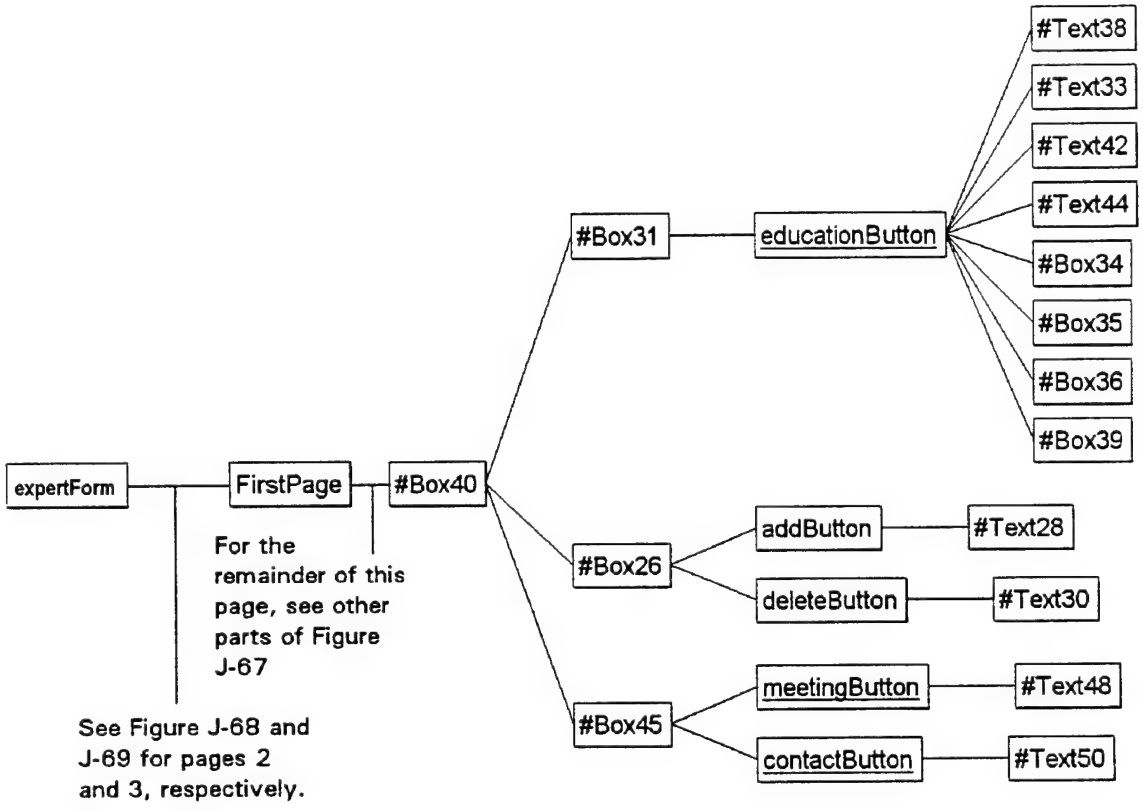


Figure J-66. EXPERTS form object tree.



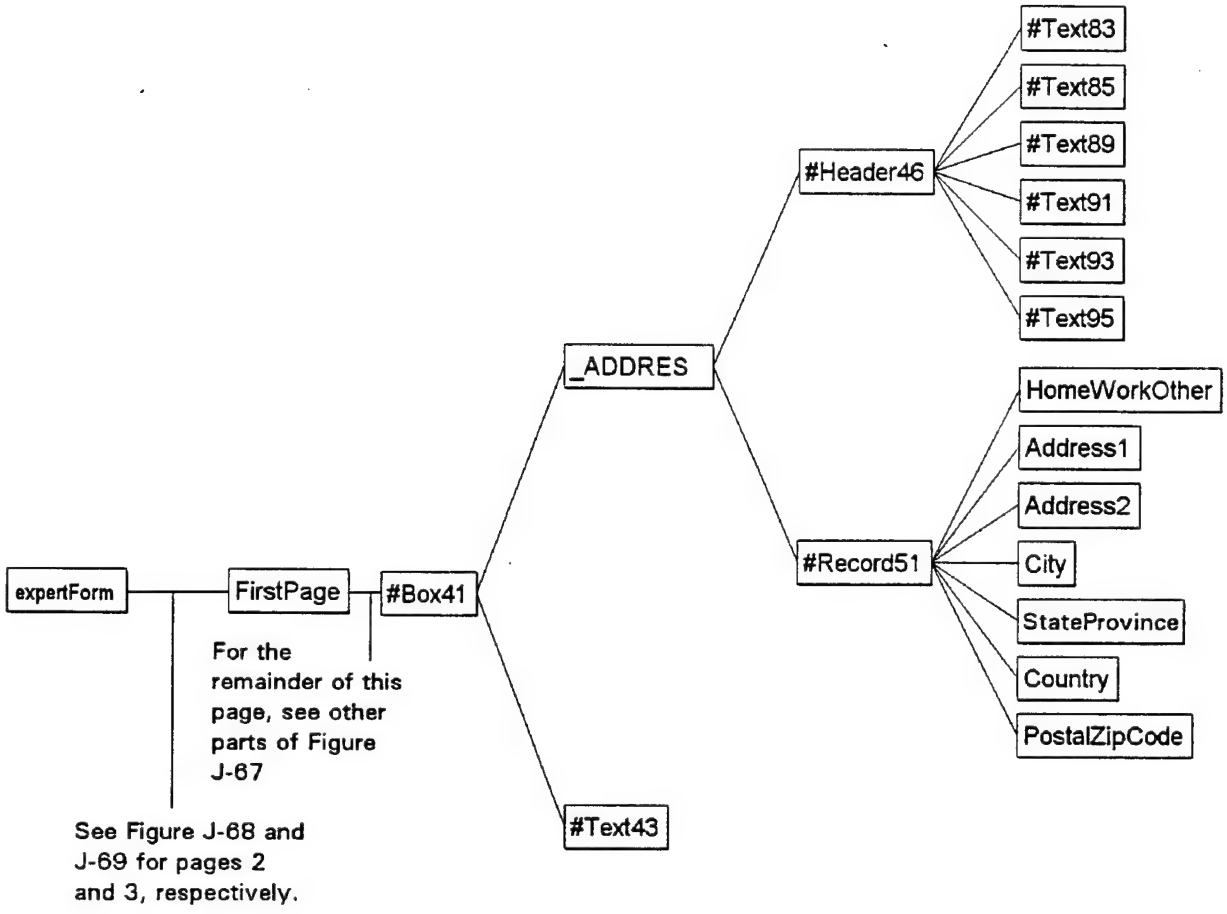
(a) First part

Figure J-67. EXPERTS form object tree page 1.



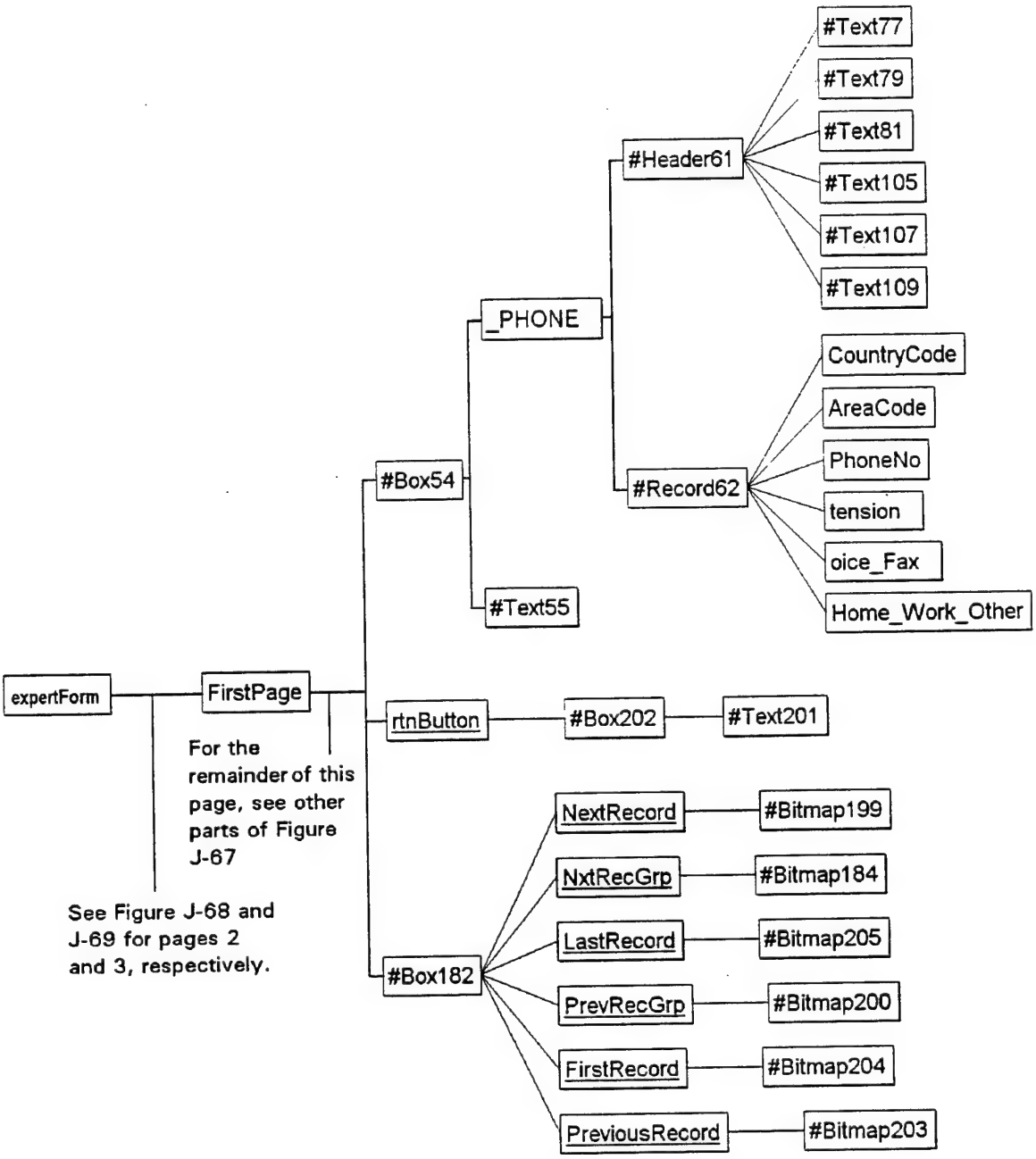
(b) Second part

Figure J-67. EXPERTS form object tree page 1 (Continued).



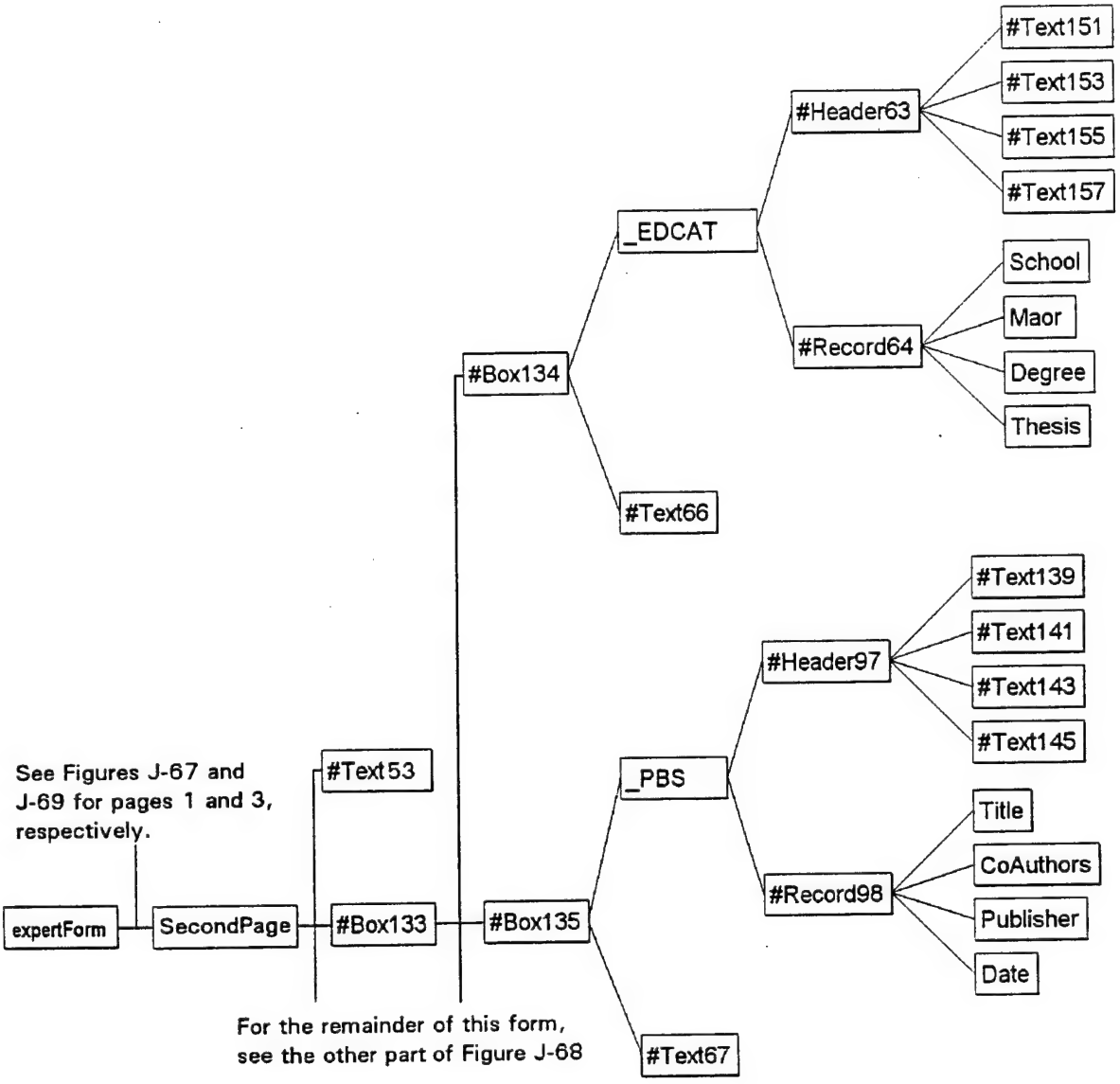
(c) Third part

Figure J-67. EXPERTS form object tree page 1 (Continued).



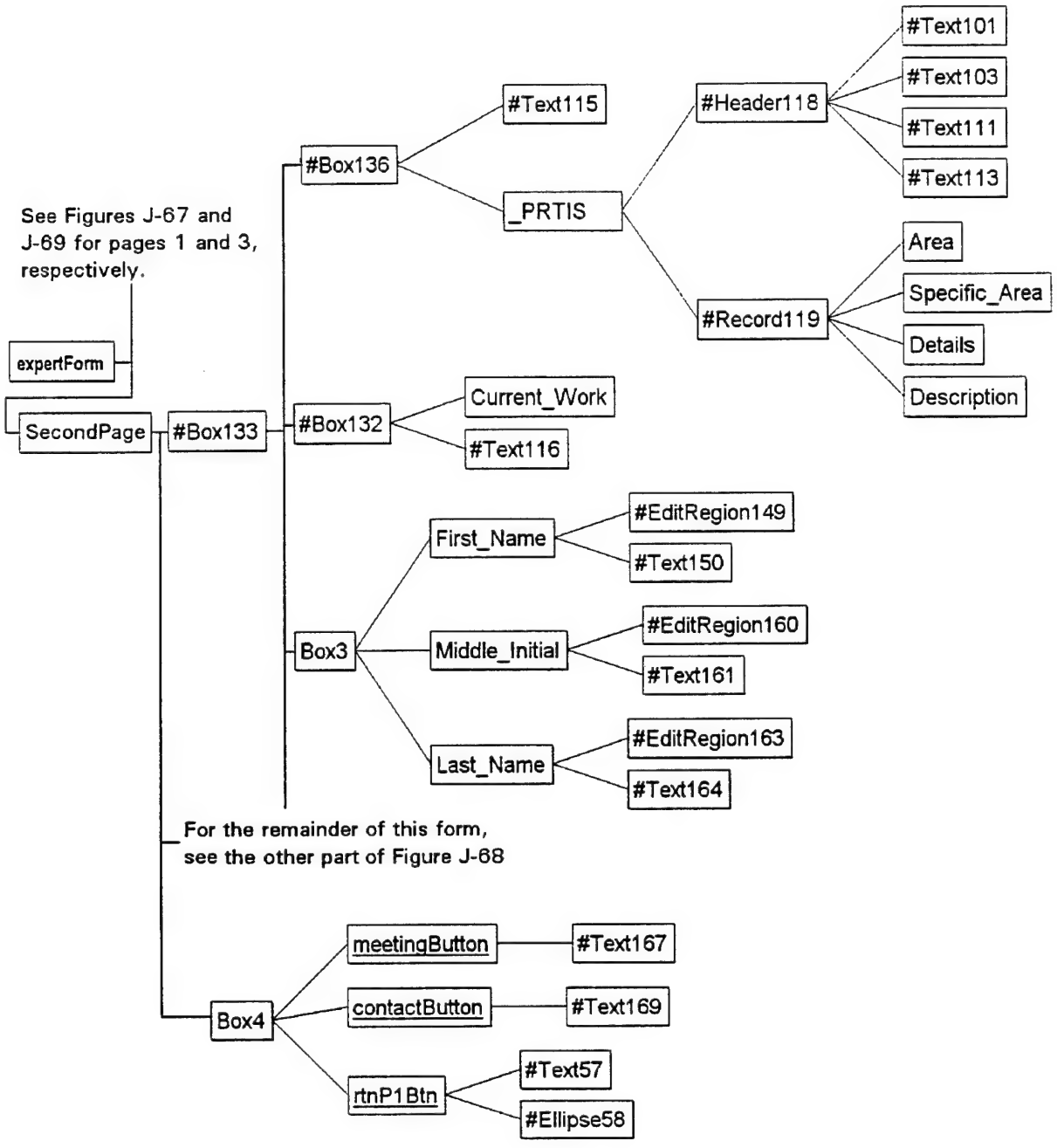
(d) Fourth part

Figure J-67. EXPERTS form object tree page 1 (Continued).



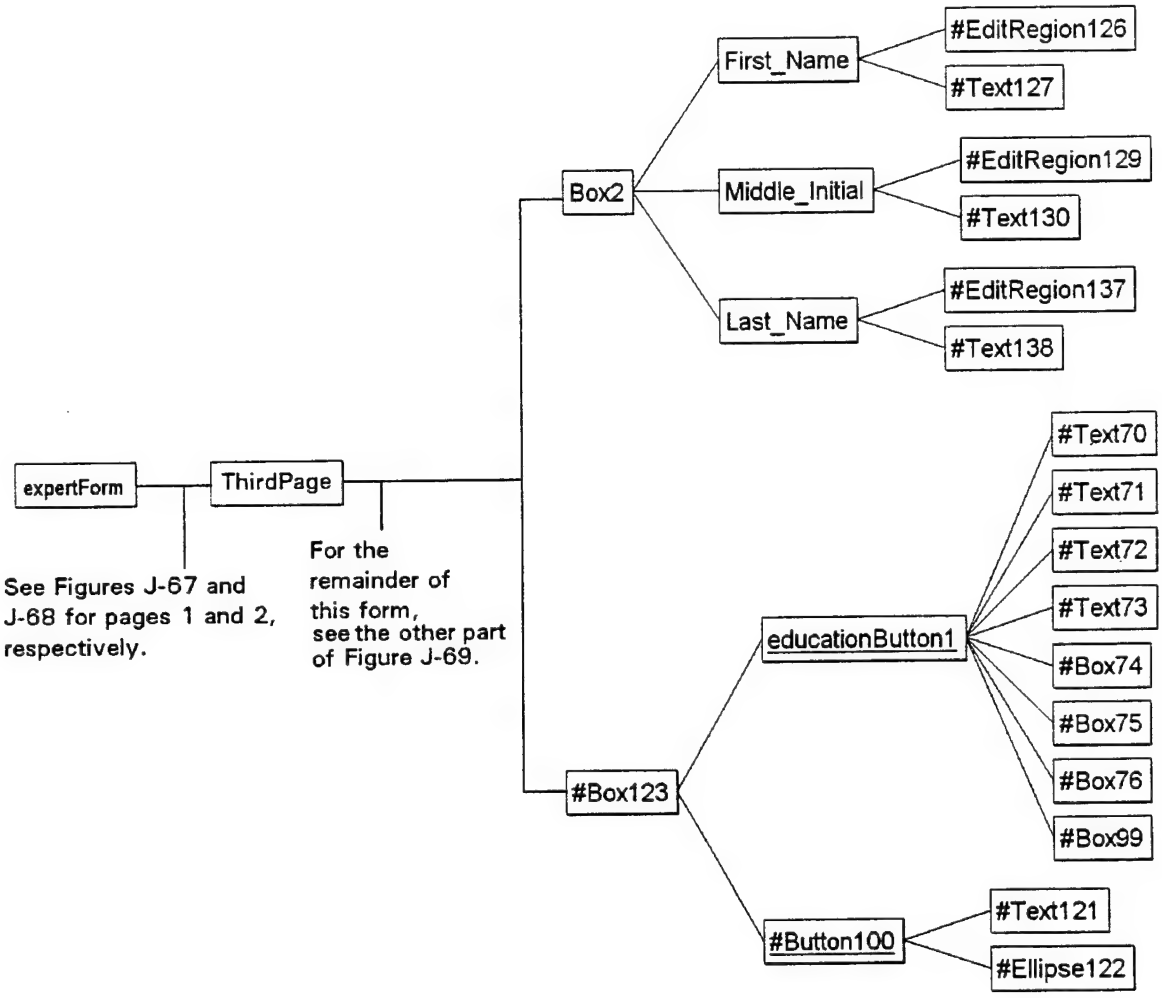
(a) First part

Figure J-68. EXPERTS form object tree page 2.



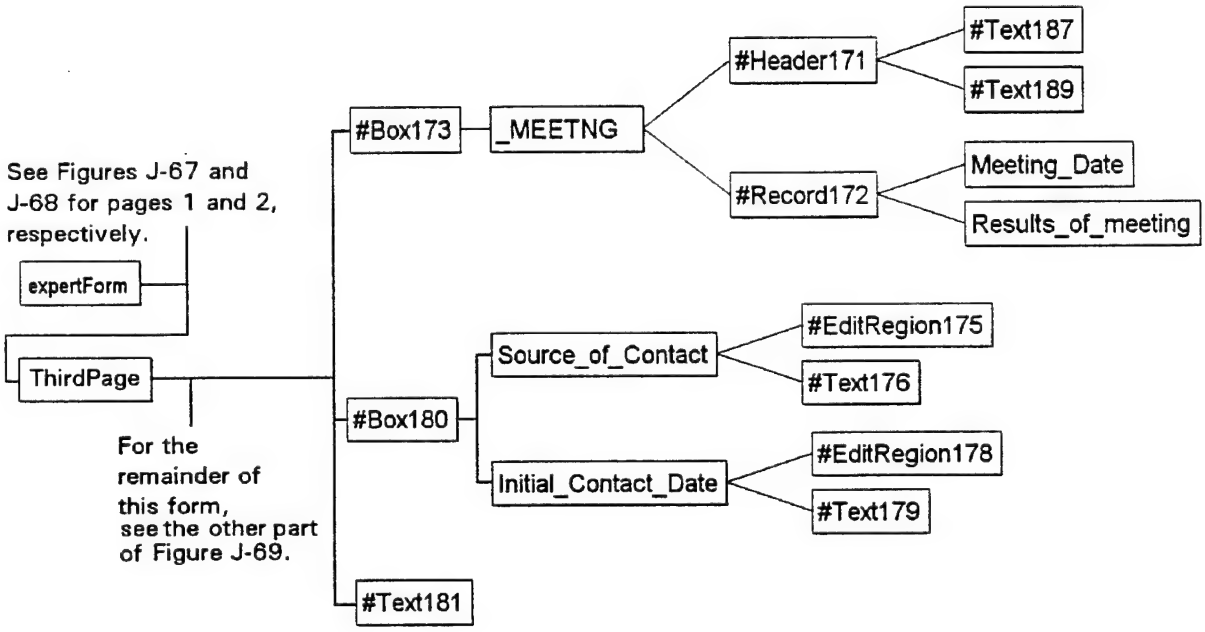
(b) Second part

Figure J-68. EXPERTS form object tree page 2 (Continued).



(a) First part

Figure J-69. EXPERTS form object tree page 3.



(b) Second part

Figure J-69. EXPERTS form object tree page 3 (Continued).

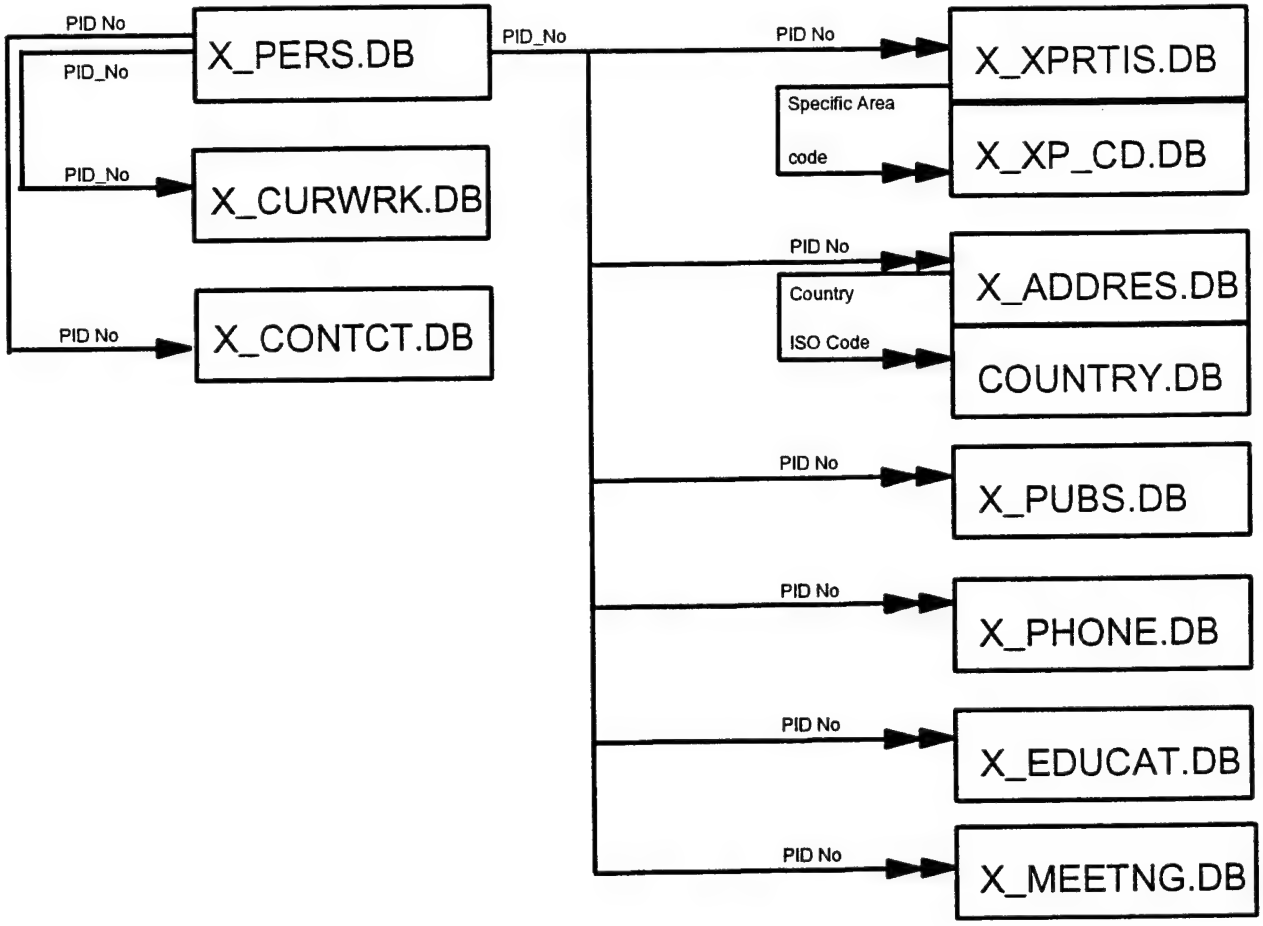


Figure J-70. EXPERTS (PERSON) data form model.

Table J-1. Listing of tables in the HPAC database.

Database Name	Table Name	Description
AGENCY	A_GENCY.DB	General agency data - address, POC, head of org., etc.
	A_PHONE.DB	Phone numbers - voice/fax, home/work, telex
BIO	B_DEFULT.DB	Standard facility types, default data
	B_FAC.DB	Facility data
	B_IMPACT.DB	Pathogen impact, what pre- and post-treatments are needed
	B_LOCAT.DB	Facility location data
	B_NAME.DB	Pathogen names, synonyms
	B_ONSITE.DB	Pathogens found on-site
	B_PATH1.DB	Incapacitating and Lethal dosages
	B_PATH2.DB	Expected pathogen attack sites, eg., skin, lungs, eyes, etc.
	B_PROP.DB	Pathogen properties
	B_PROTEC.DB	Protective systems for each pathogen
	B_SYMPT.DB	Symptoms of pathogen attack
CHEM	C_DESIGN.DB	Plant design type
	C_FACALL.DB	Plant facility data
	C_LOCATE.DB	Plant location data
	C_MIX.DB	Chemical mixtures found on plant site
	C_NAMES.DB	Synonyms of chemicals
	C_PRDC.DB	Chemicals produced at site
	C_PROPS.DB	Chemical properties
	C_SYMPT.DB	Symptoms of chemical exposure
	C_TOXIC.DB	Toxicity data
	C_VOLATL.DB	Chemical volatility data
EXPERTS	X_ADDRES.DB	Address data
	X_CONTCT.DB	Expert contact data, who met who when
	X_CURWRK.DB	Current area of work
	X_EDUCAT.DB	Educational background
	X_MEETNG.DB	Meeting notes
	X_PERS.DB	Personal data
	X_PHONE.DB	Phone numbers
	X_PUBS.DB	Publications by expert
	X_XPRTIS.DB	Areas of expertise by expert
	X_XP_CD.DB	Code definitions for expertise table
NUCLEAR	COUNTRY.DB	Country data
	NFC_FAC.DB	Fuel cycle - Facility data
	NFC_OWN.DB	Fuel cycle - Ownership data, tracks minority owners
	NRE_ADDR.DB	Research reactors - Address data
	NRE_CAT.DB	Research reactors - Reactor categories
	NRE_EXPF.DB	Research reactors - Experiments
	NRE_FUEL.DB	Research reactors - Fuel data

Table J-1. Listing of tables in the HPAC database (Continued).

Database Name	Table Name	Description
NUCLEAR	NRE_GENI.DB	Research reactors - General information
	NRE_PROD.DB	Research reactors - Production data
	NRE_STAT.DB	Research reactors - Status codes
	NRE_TECH.DB	Research reactors - Technical data
	NRE_UTIL.DB	Research reactors - Usage data
	N_FACIL.DB	Power reactors - Facility data
	N_FAC_Q.DB	Power reactors - Query results, mirrors N_FACIL.DB
	N_F_LOAD.DB	Power reactors - Fuel loading
	N_LOCAT.DB	Power reactors - Location data
	N_OP_CD.DB	Power reactors - Operating codes
	N_OP_HIS.DB	Power reactors - Operating history
OTHER	EDIT.DB	Archive table that tracks changes to a database

Table J-2. Nuclear power reactors (database—all fields).

Field Name	Type	Size	Key	Description	Example[1]
Table Name: N_FACIL					
Architect/Engineer	A	30		Facility designers.	Gilbert
Comments	M	50		General comments about the facility.	Listed as no longer in service in ANS World List of Nuclear Power Plants
Completion %	N			How much of the facility is completed, (%).	100
Constructor	A	30		Facility builder.	ENTRECANALES
Containment type	A	80		The containment vessel design type.	CAVITY BLASTED IN GRAPHITE ROCK
Design Type	A	6		What type of reactor is this.	PHWR
FID No	N		Yes	Facility Identification Number	5029
Facility Name	A	23		The facility's proper name	AGESTA
Generator Supplier	A	30		Manufacturer of generator system.	SIEMENS
LID No	N			Location ID Number, ties to N_LOCAT.DB	10258
Model	A	15		Specific model type of a design.	VVER-440/V230
Operator	A	10		The company that manages and operates the facility.	COMED
Owner	A	10		The principal owner of the facility.	SEP
Power Capacity MWe	N			Maximum net current capacity, - MegaWatts (electric)	1120
Reactor Manufacturer	A	30		What company manufactured the reactor.	WEST
Specific Power	A	80		Power generated per kg of UO2 (kW/kg)	22.8
Status	A	1		What is the facility's status, (Proposed, Operating, Shutdown, Decommisioned, Under construction)	O
Steam Generator Design	A	80		Heat exchanger design, either U-tube or straight pass through.	U-SHAPED TUBE AND SHELL

Note: [1] The data in the column labeled "Example" is taken directly from the IAEA Power Reactor Information System (PRIS) Database. For some entries the data simply continues (spills over) from the Example field in one row to the Example field in the next row. Anomalies in text printout may result from the database design and/or the arbitrary width assigned to the column by the Project Team.

Table J-2. Nuclear power reactors (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example[1]
Table Name: N_FACIL					
Thermal Power MWt	N			Heat energy produced by core, MegaWatts (thermal)	3411
Turbine Supplier	A	30		The company that manufactured the turbines.	SKODA
Table Name: N_F_LOAD					
Chem Composition	A	25		Fuel Material	UO2
FID No	N		Yes	Facility Identification Number	5029
Fuel Enrichment	A	80		Average fuel enrichment (%)	1.8 / 2.4 / 3.1
Fuel Enrichment Reload	A	80		Average fuel enrichment of the reloaded material (%).	3.3-4.4
Geometry	A	30		What is the geometric arrangement of the fuel rods.	Hex
IsoCode	A	2		Two letter ISO country code (retained for tie to original PRIS data)	RK
No of Rods/Assembly	A	10		How many fuel rods are in each fuel assembly.	312
Physical Form	A	50		Solid, Liquid or Gas	PELLETS
RefNo	A	12		The country's facility reference number (retained for tie to original PRIS data)	10
Units	A	1		The number of the unit located at a particular site (retained for tie to original PRIS data)	
Table Name: N_LOCAT					
Address1	A	50		First address line	Kori-changan-up, Yangsan-Gun,
Address2	A	30		Second address line, optional	Kyongsangnam-Do
Adiministrative District	A	30		State or Province of location	Kyongnam
Area Code	A	6		Telephone area code of facility	523
City (Nucl. News)	A	30		The name of the city as fouond in Nelear News.	Kori
City (alternate)	A	30		The name of the city from an alternate source.	Kori

Note: [1] The data in the column labeled "Example" is taken directly from the IAEA Nuclear Research Reactor Database. For some entries the data simply continues (spills over) from the Example field in one row to the Example field in the next row. Anomalies in text printout may result from the database design and/or the arbitrary width assigned to the column by the Project Team.

Table J-2. Nuclear power reactors (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example[1]
Table Name: N_LOCAT					
Country	A	2		Country	RK
Deputy	A	35		The number two person at the site.	Yong Shick Oh
EW	A	1		East or West of Prime Meridian	E
Fax	A	10		Main fax number of facility	376-2214
Geographic memo	M	50		Where did the data come from, comments on the valididty of the data.	Itaorna not in Times Atlas of the World (1993). Angra dos
LAD	N			Latitude, in degrees	23
LAM	N			Latitude, in minutes	0
LAS	N			Latitude, in seconds	12
LID No	N		Yes	Location Identification Code	10005
LOD	N			Longitude, in degrees	129
LOM	N			Longitude, in minutes	20
LOS	N			Longitude, in seconds	30
ManagerDirector	A	35		The person in charge of the facility, usually on site.	Pedro J Diniz de Figueiredo
NS	A	1		North or South of equator	N
Postal Code/Zip Code	A	12		Postal or ZIP code of mailing address	22209
Region/Township	A	30		Local political unit, township in US	Puk-Myon
Telephone	A	10		Main telephone number of facility.	80-0404
Telex	A	15		Main telex number for facility	KECULJN K54430
Table Name: N_OP_CD					
DESCRIPTION	A	25		Description of the outage code.	Under Construction
N_OP_CD	A	1	Yes	Outage code	C
Table Name: N_OP_HIS					
Capacity factor, annual	N			Load factor (%), most recent available annual figures	83.75
Capacity factor, cum.	N			Load factor (%), cumulative	70.25
Date of data	D			Date when data was collected.	12/31/93

Note: [1] The data in the column labeled "Example" is taken directly from the IAEA Nuclear Research Reactor Database. For some entries the data simply continues (spills over) from the Example field in one row to the Example field in the next row. Anomalies in text printout may result from the database design and/or the arbitrary width assigned to the column by the Project Team.

Table J-2. Nuclear power reactors (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example[1]
Expected Burnup	A	10			42000
FID No	N		Yes	Facility Identification Number	5034
IsoCode	A	2		Two letter ISO country code (retained for tie to original PRIS data)	ES
No of batches	N			The number of batches needed to replace entire core, (One divided by the percent of core withdrawn)	3.33
Operating hrs actual	N			Time on line, annual	7662
Output MWe actual	N			Current Net Electrical output.	920
RefNo	A	12		The country's facility reference number (retained for tie to original PRIS data)	8
Refueling Cycle (Mo)	N			Design frequency for refuelling (in months)	28
Residence Time (yrs)	N			The amount of time that a fuel element resides in the core.	7.78
Total No of Assemblies	N			The number of fuel assemblies in the core.	157
Units	A	1		The number of the unit located at a particular site (retained for tie to original PRIS data)	

Note: [1] The data in the column labeled "Example" is taken directly from the IAEA Nuclear Research Reactor Database. For some entries the data simply continues (spills over) from the Example field in one row to the Example field in the next row. Anomalies in text printout may result from the database design and/or the arbitrary width assigned to the column by the Project Team.

Table J-3. Nuclear research reactors (database—all fields).

Field Name	Type	Size	Key	Description	Example[1]
Table Name: NRE_ADDR					
E/W	A	1		East/West longitude	E
ISO_CODE	A	2		2 letter ISO country code	AR
LAD	A	2		Latitude, in degrees	34
LAM	A	2		Latitude, in minutes	25
LAS	A	2		Latitude, in seconds	10
LOD	A	3		Longitude, in degrees	44
LOM	A	2		Longitude, in minutes	35
LOS	A	2		Longitude, in seconds	20
N/S	A	1		North/South latitude	S
OPER_OWN_1	A	32		Operator/Owner address data (1)	COMISION NACIONAL DE ENERGIA
OPER_OWN_2	A	32		Operator/Owner address data (2)	ATOMICA. CNEA
OPER_OWN_3	A	32		Operator/Owner address data (3)	NUCLEAR POWER BRANCH
REFID No	N		Yes	Research reactor facility identification number	7002
REF_NO	A	4		Facility's country reference number	
REG_CITY_1	A	32		Region or city where reactor is located (1)	AVDA. CONTITUYENTES Y AV. GRAL.
REG_CITY_2	A	32		Region or city where reactor is located (2)	PAZ - REPUBLICA ARGENTINA
REG_CITY_3	A	32		Region or city where reactor is located (3)	
STATE	A	32		State where reactor is located	ARGENTINA
STREET_1	A	32		Street address where reactor is located (1)	AVDA. CONTITUYENTES Y AV. GRAL.
STREET_2	A	32		Street address where reactor is located (2)	PAZ - REPUBLICA ARGENTINA
STREET_3	A	32		Street address where reactor is located (3)	
Table Name: NRE_CAT					
Code	A	1	Yes		A
Description	A	22			

Note: [1] The data in the column labeled "Example" is taken directly from the IAEA Nuclear Research Reactor Database. For some entries the data simply continues (spills over) from the Example field in one row to the Example field in the next row. Anomalies in text printout may result from the database design and/or the arbitrary width assigned to the column by the Project Team.

Table J-3. Nuclear research reactors (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example[1]
Table Name: NRE_EXPF					
CORE_IR_NO	A	3			1
CORE_MX_FL	A	6			1.000000e+12
EXCOR_FLX	A	6			1.200000e+13
EXCOR_I_NO	A	3			1
HORIZ_NO	A	2			36
HOR_MAX_FL	A	6			1.000000e+13
HOR_USE	A	60			NEUTRON BEAMS, NAA
ISO_CODE	A	2		2 letter ISO country code	AU
LOOPS_FLX	A	6			4.000000e+14
LOOPS_NO	A	6			1
LOOPS_USE	A	60			FUELS AND MATERIALS TESTING
REFID No	N		Yes	Research reactor facility identification number	7028
REFL_IR_NO	A	3			4
REFL_MX_FL	A	6			2.000000e+12
REF_NO	A	4		Facility's country reference number	2
VERT_NO	A	2			12
VER_MAX_FL	A	6			4.500000e+13
VER_USE	A	60			MATERIALS TESTING (CREEP, FLUX DETECTION)
Table Name: NRE_FUEL					
BURN_AVG	A	4			55
BURN_DIS	A	4			65
CLAD_MAT	A	20			AL
CLAD_THI	A	15			0.43
DIM_PLATES	A	16			650 X 75 X 3
DIM_RODS	A	12			660
DIM_TUBS	A	60			103 OD, 54.1 ID, X 660 LONG.
ELEM_OTH	A	60			IRT-M TYPE FUEL
ELEM_REPL	A	2			3

Note: [1] The data in the column labeled "Example" is taken directly from the IAEA Nuclear Research Reactor Database. For some entries the data simply continues (spills over) from the Example field in one row to the Example field in the next row. Anomalies in text printout may result from the database design and/or the arbitrary width assigned to the column by the Project Team.

Table J-3. Nuclear research reactors (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example[1]
Table Name: NRE_FUEL					
ENR_MAX_TX	A	50			
ENR_MIN_TX	A	50			
ENR_PR_MIN	N				20
ENR_RP_MAX	N				20
ENR_SUPPL	A	55			USAEC
EQ_COR_SIZ	A	50			228
EQ_OVR_VOL	A	50			32
FREQ_REF	A	10			28 DAYS
FUEL_FABR	A	60			CNEA, AR
ISO_CODE	A	2		2 letter ISO country code	AR
MAT_LOAD	A	20			0.55
MAT_THIC	A	20			7.6
MIN_CRIT_M	N				2.3
MIN_CRIT_T	A	55			KG
NOM_NO	A	4			16
NOM_S_FUL	A	3			8
NORM_COR_L	N				2.8
ORG_FIS_MA	A	40			USA
PLAT_ELEMN	A	2			19
REFID No	N		Yes	Research reactor facility identification number	7025
REF_NO	A	4		Facility's country reference number	4
RODS_ELEMN	A	2			1
SPEN_FUE	A	4			24
SPEN_FUEL	A	12			AS REQ
TUBS_ELEMN	A	2			6
URAN_DEN	A	20			U-238=3.73; U-235=0.4

Note: [1] The data in the column labeled "Example" is taken directly from the IAEA Nuclear Research Reactor Database. For some entries the data simply continues (spills over) from the Example field in one row to the Example field in the next row. Anomalies in text printout may result from the database design and/or the arbitrary width assigned to the column by the Project Team.

Table J-3. Nuclear research reactors (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example[1]
Table Name: NRE_GENI					
ADD_DATE	D				
ADMIN	A	60			PERPARIM FUGA, DIRECTOR INSTITUTE OF NUCLEAR PHYSICS
AN_OP_COST	A	10			0.2 M US$
CATEGORY	A	1			A
CONST_DATE	N				19570400
CRIT_DATE	N				19850120
DATE_INF	N				19930604
FACILITY	A	25			RA-2
FAX	A	20			752-2163
INDUST_COD	A	1			2
INIT_COSTS	A	10			2.4 M US$
ISO_CODE	A	2		2 letter ISO country code	AR
LICENSING	A	60			REGULARITY AUTHORITY OF ARGENTINE
NO_REAC_OP	S				0
REFID No	N		Yes	Research reactor facility identification number	7008
REF_NO	A	4		Facility's country reference number	1
REGION_COD	A	1			6
SAFEGUARDS	A	60			IAEA
SHUT_DATE	N				19830900
STATUS	A	2			1O
TELEPHONE	A	20			(911) 23065
TELEX	A	20			2.4 M US$
TOT_STAFF	S				20
UPD_DATE	D				9/9/93
USER_ID	A	3			RIK

Note: [1] The data in the column labeled "Example" is taken directly from the IAEA Nuclear Research Reactor Database. For some entries the data simply continues (spills over) from the Example field in one row to the Example field in the next row. Anomalies in text printout may result from the database design and/or the arbitrary width assigned to the column by the Project Team.

Table J-3. Nuclear research reactors (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example[1]
Table Name: NRE_PROD					
ENERGY LOSS	N				146.45
ENERGY LOSS EXTERNAL	N				6.05
ENERGY LOSS PLANNED	N				49.92
ENERGY LOSS UNPLANNED	N				90.49
ENERGY PRODUCED	N				2467.92
HOURS ONLINE	N				2928
ISO_CODE	A	2		2 letter ISO country code	KR
NET CAPACITY	N				900
REFID No	N		Yes	Research reactor facility identification number	5008
REF_NO	A	12		Facility's country reference number	7
TOTAL HOURS	N				7248
UNITS	A	1			
YEAR	N		Yes		1986
Table Name: NRE_STAT					
Code	A	2	Yes		1O
Status	A	22			OPERATIONAL
Table Name: NRE_TECH					
CONTR_MATE	A	25			6=B4C/1=FE
CONTR_NO	A	25			7
CONV_DATE	A	50			
COOL_FORCE	A	10			120 M3/H
COOL_MATER	A	12			H2O
COOL_NAT_C	A	10			YES
COOL_VELOC	A	10			16 M3/H
DECOMM_FUT	A	60			UNDER CONSIDERATION
FLUX_FAST	A	6			3.200000e+13
FLUX_PU_FA	A	6			2.300000e+13
FLUX_PU_TH	A	6			1.000000e+17
FLUX_THERM	A	6			1.300000e+14

Note: [1] The data in the column labeled "Example" is taken directly from the IAEA Nuclear Research Reactor Database. For some entries the data simply continues (spills over) from the Example field in one row to the Example field in the next row. Anomalies in text printout may result from the database design and/or the arbitrary width assigned to the column by the Project Team.

Table J-3. Nuclear research reactors (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example[1]
Table Name: NRE_TECH					
FUEL_CON_F	A	60			1987-1988
INSTRUM_FU	A	60			1990
INSTR_UP_P	A	60			1990
ISO_CODE	A	2		2 letter ISO country code	JP
MODERAT_MA	A	12			H20
OTHER_CH_P	A	60			CONVERTED TO TRIGA MARK III IN 1977/11/07
OTHER_FUTU	A	60			CHANGE OF FUEL TYPE AND REACTOR MODIFICATIONS IN 1990.
POW_INCR_F	A	60			TO 140 MW IN 1991-1997
POW_INCR_P	A	60			1 GW IN PULSE MODE BETWEEN 1975 AND 1983.
REFID No	N		Yes	Research reactor facility identification number	7335
REFL_MATER	A	25			GRAPHITE
REFL_NO_SI	A	25			2
REF_NO	A	4		Facility's country reference number	1
TH_POW_PUL	N				2000
TH_POW_STE	N				2000
TYPE	A	15			TRIGA MARK III
Table Name: NRE_UTIL					
ADD_INFO_1	A	60			THE PLANT DOES NOT YET OPERATE ON A REGULAR BASIS. THE USE OF
ADD_INFO_2	A	60			20% ENRICHED FUEL ELEMENTS WILL BE DONE A.S.A.P. AS AGREED
ADD_INFO_3	A	60			BY C.N.E.A.

Note: [1] The data in the column labeled "Example" is taken directly from the IAEA Nuclear Research Reactor Database. For some entries the data simply continues (spills over) from the Example field in one row to the Example field in the next row. Anomalies in text printout may result from the database design and/or the arbitrary width assigned to the column by the Project Team.

Table J-3. Nuclear research reactors (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example[1]
Table Name: NRE_UTIL					
BAS_RES_1	A	60			NEUTRON NOISE; NEUTRON RADIOGRAPHY; NEUTRON ACTIVATION ANALY
BAS_RES_2	A	60			SIS; NEUTRON VIBRATIONS.
BAS_RES_3	A	60			FT MEMBRANE OF FERROELECTRIC, CRYSTAL STRUCTURE, ETC.
DAY_WK	S				4
HR_DAY	S				2
ISO_CODE	A	2		2 letter ISO country code	OS
ISO_PRD_1	A	60			YES, MAINLY MO-99
ISO_PRD_2	A	60			CI), S-35(199MCI), BR-82(27MCI), CA-45(23MCI), NA-24(587MCI)
ISO_PRD_3	A	60			-111M(2.5MCI), BR-82(25MCI)
MWD_YEAR	N				3130
NUC_CHM	A	60			INNAA & RNNA; BIOMEDICAL STUDIES
NUE_RAD	A	60			YES
NUE_SCT	A	60			5 SPECTROMETERS. SEE ADDITIONAL INFORMATION
REFID No	N		Yes	Research reactor facility identification number	7284
REF_NO	A	4		Facility's country reference number	2
TRAINING	A	60			STUDENTS AND OPERATORS
	A	60			IRRADIATION

Note: [1] The data in the column labeled "Example" is taken directly from the IAEA Nuclear Research Reactor Database. For some entries the data simply continues (spills over) from the Example field in one row to the Example field in the next row. Anomalies in text printout may result from the database design and/or the arbitrary width assigned to the column by the Project Team.

Table J-3. Nuclear research reactors (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example[1]
Table Name: NRE_UTIL					
TST_RAD	A	60			GAMMA
UT_OTH_1	A	60			NEUTRON AND TEMPERATURE NOISE INVESTIGATIONS UNDER BOILING C
UT_OTH_2	A	60			ONDITIONS. STRUCTURE & DYNAMICS OF DISORDERED SYSTEMS BY DIF
UT_OTH_3	A	60			FRACTION & INELASTIC SCATTERING, MAGNETIC DOMAIN
WK_YEAR	S				42

Note: [1] The data in the column labeled "Example" is taken directly from the IAEA Nuclear Research Reactor Database. For some entries the data simply continues (spills over) from the Example field in one row to the Example field in the next row. Anomalies in text printout may result from the database design and/or the arbitrary width assigned to the column by the Project Team.

Table J-4. Nuclear fuel cycle facilities (database—all fields).

Field Name	Type	Size	Key	Description	Example
Table Name: NFC_FAC					
City	A	28		The City (or town) nearest the facility	VASTERAS
CountryCodeISO	A	2		The two letter code for the country where the facility is located (ISO designation).	SE
E_W	A	1		The East or West hemisphere for longitude	E
FID No	N		Yes	Facility Identification number	6001
FacilityName	A	28		The name of the facility	ABB ATOM FUEL FABRI-CATION PL
FacilityType	A	28		The type of facility.	
LatitudeDeg	N			The latitude in degrees	59
LatitudeMin	N			The latitude in minutes	21
LongitudeDeg	N			The longitude in degrees	16
LongitudeMin	N			The longitude in minutes	23
N_S	A	1		The North or South hemisphere for latitude	N
Operation	A	28		The type of operation that takes place at the facility.	BWR, PWR
Operator	A	40		The operating company or organization of the facility.	ABB ATOM, FUEL DIVISION
OperatorAddress	M	10		The address of the operator	AAB ATOM, S-721 63 VASTERAS, SWEDEN
OperatorFax	A	12		The facsimile number of the operator.	46 21 189471
OperatorPhone	A	12		The main telephone number of the operator.	46 21 107000
OperatorTelex	A	12		The telex number of the operator.	40 629
Owner	A	40		The principal owner.	ABB (ASEA BROWN BOWERY)
OwnerAddress	M	10		The address of the principal owner.	SAME AS OPERATOR
OwnerFax	A	12		The facsimile number of the owner.	071 389 6841
OwnerPhone	A	12		The main telephone number of the owner.	071 389 6565
OwnerTelex	A	12		The telex number of the owner.	8102215536
Share	N			The percentage of the facility owned by the principal owner.	100
StateProvince	A	28		The state or province where the facility is located.	VASTMANLAND

Table J-4. Nuclear fuel cycle facilities (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example
Table Name: NFC_OWN					
FID No	N		Yes	Facility Identification number	6105
OWNER	A	40	Yes	The name of one of the partners in the facility.	CENTRAL ELECTRICITY GENERATING BOARD UK
SHARE	N			The percentage share this owner has in the facility.	7

Table J-5. Country table.

Field Name	Type	Size	Key	Description	Examples
ISO code	A	2	Yes	The 2 letter ISO code for a country.	US
Country	A	25		The Nation or Country of interest, the common name.	United States
Continent	A	15		The continent where the country is located.	North America
Country Telephone Code	A	4		The international telephone code for the country.	1
Country Abbrev3	A	3		The 3 letter country code (found in some data sources).	USA

Table J-6. Country codes and other abbreviations.

Country Codes

ISO Code	Country	Continent	Country Telephone Code	Country Abbrev
AL	Albania	Europe	355	
AM	Armenia	Asia	7	
AR	Argentina	S. America	54	ARG
AU	Australia	Australia	61	AUS
BA	Bangladesh	Asia	880	
BE	Belgium	Europe	32	BEL
BG	Bulgaria	Europe	359	BUL
BO	Bolivia	S. America	591	
BR	Brazil	S. America	55	BRA
BY	Belarus, Rep. of	Europe	7	
CA	Canada	N. America	1	CAN
CE	Chile	S. America	56	
CH	Switzerland	Europe	41	
CN	China	Asia	86	CPR
CO	Columbia	S. America	57	
CU	Cuba	S. America	53	
CZ	Czech Republic	Europe	42	CZE
DE	Germany	Europe	49	GER
DK	Denmark	Europe	45	DEN
DZ	Algeria	Africa	213	
EC	Ecuador	S. America	593	
EG	Egypt	Africa	20	EGY
ES	Spain	Europe	34	SPA
FI	Finland	Europe	358	FIN
FR	France	Europe	33	FRA
GA	Gabon	Africa	241	
GB	United Kingdom	Europe	44	
GG	Georgia	Europe	7	
GH	Ghana	Africa	233	
GR	Greece	Europe	30	
HU	Hungary	Europe	36	HUN
ID	Indonesia	Asia	62	
IN	India	Asia	91	IND
IQ	Iraq	Asia	964	
IR	Iran	Asia	98	
IS	Israel	Asia	972	ISR
IT	Italy	Europe	39	ITA
JM	Jamaica	N. America	1	
JP	Japan	Asia	81	JPN
KK	Khazakstan	Asia	7	
KP	Korea, D.P.R.	Asia		
KY	Kyrgyzstan	Asia	7	
LI	Lithuania	Europe	7	

Table J-6. Country codes and other abbreviations (Continued).

ISO Code	Country	Continent	Country Telephone Code	Country Abbrev
LK	Sri Lanka	Asia	94	
LV	Latvia, Rep. of	Europe	7	
LX	Luxembourg	Europe	352	
LY	Libya	Africa	218	
MG	Madagascar	Africa	261	
MO	Morocco	Africa	212	MOR
MX	Mexico	N. America	52	MEX
MY	Malaysia	Asia	60	
NA	Namibia	Africa	264	
NG	Nigeria	Africa	234	
NL	Netherlands	Europe	31	NET
NO	Norway	Europe	47	NOR
NR	Niger	Africa	227	
NZ	New Zealand	Micronesia	64	
OS	Austria	Europe	43	
PE	Peru	S. America	51	
PI	Philippines	Asia	63	
PK	Pakistan	Asia	92	PAK
PO	Poland	Europe	48	
PR	Portugal	Europe	351	
RK	Korea, Rep. of	Asia	82	ROK
RO	Romania	Europe	40	ROM
RU	Russia	Europe	7	RUS
SE	Sweden	Europe	46	SWE
SI	Slovenia	Europe	381	SLO
SK	Slovak Republic	Europe	42	
SR	Serbia	Europe	381	
SY	Syria	Asia	963	
TH	Thailand	Asia	66	
TJ	Tajikistan	Asia	7	
TN	Tunisia	Africa	216	
TR	Turkey	Asia	90	TUR
TW	Taiwan	Asia	886	
UA	Ukraine	Europe	7	UKR
US	USA	N. America	1	USA
UY	Uruguay	S. America	598	
UZ	Uzbekistan	Asia	7	
VE	Venezuela	S. America	58	
VN	Vietnam	Asia	84	
YU	Yugoslavia	Europe	381	
ZA	South Africa	Africa	27	SAF
ZR	Zaire	Africa	243	
ZZ	Not Available			

Table J-7. Other abbreviations used in the database.

REACTOR TYPES

AGR	ADVANCED GAS-COOLED, GRAPHITE-MODERATED REACTOR
BWR	BOILING LIGHT-WATER-COOLED AND MODERATED REACTOR
FBR	FAST BREEDER REACTOR
GCR	GAS-COOLED, GRAPHITE-MODERATED REACTOR
HTGR	HIGH-TEMPERATURE GAS-COOLED, GRAPHITE-MODERATED REACTOR
HWGCR	HEAVY-WATER-MODERATED, GAS-COOLED REACTOR
HWLWR	HEAVY-WATER-MODERATED, BOILING LIGHT-WATER-COOLED REACTOR
LWGR	LIGHT-WATER-COOLED, GRAPHITE-MODERATED REACTOR
PHWR	PRESSURIZED HEAVY-WATER-MODERATED AND COOLED REACTOR
PWR	PRESSURIZED LIGHT-WATER-MODERATED AND COOLED REACTOR
SGHWR	STEAM-GENERATED HEAVY-WATER REACTOR

OPERATORS

ALP	ALABAMA POWER CO.
ANV	EMPRESA NACIONAL DE ELECTRICIDAD, S.A. / HIDROELECTRICA DE CATALUNA, S.A.
APL	ARKANSAS POWER & LIGHT CO.
APS	ARIZONA PUBLIC SERVICE
AVR	ARBEITSGEMEINSCHAFT VERSUCHSREAKTOR GMBH
BGE	BALITMORE GAS & ELECTRIC CO.
BKW	BERNISCHE KRAFTWERKE AG
BNFL	BRITISH NUCLEAR FUELS PLC
BOSTED	BOSTON EDISON CO.
BW	BAYERNWERK AG
CEA/EDF	COMMISSARIAT A L'ENERGIE ATOMIQUE / ELECTRICITE DE FRANCE
CECO	CHUGOKU ELECTRIC POWER CO.
CEGB	CENTRAL ELECTRICITY GENERATING BOARD
CEI	CLEVELAND ELECTRIC ILLUMINATING CO.
CHUBU	CHUBU ELECTRIC POWER CO.
CNAL	COMPANIA SEVILLANA DE ELECTRICIDAD, S.A. / HIDROELECTRICA ESPANOLA, S.A. / UNION ELECTRICA-FENOSA, S.A. / IBERDUERO, S.A.
CNAS	FUERZAS ELECTRICAS DE CATALUNA, S.A. / EMPRESA NACIONAL DE ELECTRICIDAD, S.A.
CNEA	COMISION NACIONAL DE ENERGIA ATOMICA
COMED	COMMONWEALTH EDISON CO.
CONED	CONSOLIDATED EDISON CO.
CPC	CONSUMERS POWER CO.
CPL	CAROLINA POWER & LIGHT CO.
CYAPC	CONNECTICUT YANKEE ATOMIC POWER CO.
DETED	DETROIT EDISON CO.
DUKE	DUKE POWER CO.
DUQUESNE	DUQUESNE LIGHT CO.
EBES	SOCIETES REUNIES D'ENERGIE DU BASSIN DE L'ESCAUT SA
ESO	ELECTROSTATION BOHUNICE
EDF	ELECTRICITE DE FRANCE
EEE	ECONOMIC ENERGY ENTERPRISE NPS KOZLODUY
ENEL	ENTE NAZIONALE PER L'ENERGIA ELETTRICA
ESKOM	ESKOM
FPC	FLORIDA POWER CO.

Table J-7. Other abbreviations used in the database (Continued).

OPERATORS

FPL	FLORIDA POWER & LIGHT CO.
FURNAS	FURNAS CENTRAIS ELECTRICAS SA
GKN	GEMEINSCHAFTS-KERNKRAFTWERK NECKAR GMBH
GKN(NL)	GEMEENSCHAPPELIJKE KERNENERGIECENTRALE NEDERLAND (GKN)
GP	GEORGIA POWER CO.
GPU	GENERAL PUBLIC UTILITIES
GSU	GULF STATES UTILITIES CO.
HE	HIDROELECTRICA ESPANOLA, S.A.
HEPCO	HOKKAIDO ELECTRIC POWER CO.
HIFRENSA	SOCIEDAD HISPANO-FRANCESA DE ENERGIA NUCLEAR, S.A.
HKG	HOCHTEMPERATUR-KERNKRAFTWERK GMBH
HLP	HOUSTON LIGHT AND POWER CO.
HQ	HYDRO QUEBEC
IELP	IOWA ELECTRIC LIGHT & POWER CO.
IMPCO	INDIANA & MICHIGAN POWER CO.
INTERCOM	SOCIETE INTERCOMMUNALE BELGE DE GAZ ET D'ELECTRICITE
IPC	ILLINOIS POWER CO.
IPE	INSTITUTE OF PLANNING & ENERGETICS
IVO	IMATRAN VOIMA OY
JAPCO	JAPAN ATOMIC POWER CO.
KBG	KERNKRAFTWERK-BETRIEBSGESELLSCHAFT MBH
KBR	KERNKRAFTWERK BROKDORF GMBH
KEPCO	KANSAI ELECTRIC POWER CO.
KEPCO.	KOREA ELECTRIC POWER CORPORATION
KGB	KERNKRAFTWERKE GUNDREMMINGEN BETRIEBSGESELLSCHAFT MBH
KGE	KANSAS GAS & ELECTRIC CO.
KKB	KERNKRAFTWERK BRUNSBUETTEL GMBH
KKG	KERNKRAFTWERK GOESGEN-DAENIKEN AG
KKI	KERNKRAFTWERK ISAR GMBH
KKI 2	GEMEINSCHAFTSKERNKRAFTWERK ISAR 2 GMBH
KKK	KERNKRAFTWERK KRUEMMEL GMBH
KKL	KERNKRAFTWERK LEIBSTADT
KKP	KERNKRAFTWERK PHILIPPSBURG GMBH
KKS	KERNKRAFTWERK STADE GMBH
KKU	KERNKRAFTWERK UNTERWESER GMBH
KLE	KERNKRAFTWERK LIPPE--EMS GMBH
KWG	GEMEINSCHAFTSKERNKRAFTWERK GROHNDE GMBH
KWO	KERNKRAFTWERK OBRIGHEIM GMBH
KYUSHU	KYUSHU ELECTRIC POWER CO.
LPL	LOUISIANA POWER & LIGHT CO.
MP&L	MISSISSIPPI POWER & LIGHT CO.
MPS	MINISTRY OF POWER STATIONS OF THE USSR
MVMT	HUNGARIAN ELECTRIC WORKS
MYAPC	MAINE YANKEE ATOMIC POWER CO.
NBEPC	NEW BRUNSWICK ELECTRIC POWER COMMISSION
NEK	NUKLEARNA ELEKTRANA KRSKO
NMPC	NIAGARA MOHAWK POWER CORPORATION
NNEC	NORTHEAST NUCLEAR ENERGY COMPANY
NOK	NORDOSTSCHWEIZERISCHE KRAFTWERKE AG
NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD.

Table J-7. Other abbreviations used in the data base (Continued).

OPERATORS

NPPD	NEBRASKA PUBLIC POWER DISTRICT
NSP	NORTHERN STATES POWER CO.
NUCLENOR	CENTRALES NUCLEARES DEL NORTE, S.A.
OH	ONTARIO HYDRO
OKG	OKG AKTIEBOLAG
OPPD	OMAHA PUBLIC POWER DISTRICT
PAEC	PAKISTAN ATOMIC ENERGY COMMISSION
PASNY	POWER AUTHORITY OF THE STATE OF NEW YORK
PE	PREUSSENELEKTRA AG
PEC	PHILADELPHIA ELECTRIC CO.
PGEC	PACIFIC GAS & ELECTRIC CO.
PNC	POWER REACTOR & NUCLEAR FUEL DEVELOPMENT CORP.
PORTGE	PORTLAND GENERAL ELECTRIC CO.
PP&L	PENNSYLVANIA POWER & LIGHT CO.
PSCC	PUBLIC SERVICE CO. OF COLORADO
PSEG	PUBLIC SERVICE ELECTRIC & GAS CO.
PZEM	PROVINCIALE ZEEUWSE ENERGIE MAATSCHAPPIJ
RGE	ROCHESTER GAS & ELECTRICITY CORPORATION
RWE	RHEINISCH-WESTFAELISCHES ELEKTRIZITAETSWERK AG
SC	STATE COMMITTEE FOR THE USE OF ATOMIC ENERGY IN THE USSR
SCE	SOUTHERN CALIFORNIA EDISON
SCEG	SOUTH CAROLINA ELECTRIC & GAS CO.
SENA	SOCIETE D'ENERGIE NUCLEAIRE FRANCO-BELGE DES ARDENNES
SHIKOKU	SHIKOKU ELECTRIC POWER CO.
SMUD	SACRAMENTO MUNICIPAL UTILITY DISTRICT
SRIAR	SCIENTIFIC RESEARCH INSTITUTE FOR ATOMIC REACTORS
SSEB	SOUTH OF SCOTLAND ELECTRICITY BOARD
SSPB	SWEDISH STATE POWER BOARD
SYDKRAFT	SYDKRAFT AB
TEPCO	TOKYO ELECTRIC POWER CO.
TOHOKU	TOHOKU ELECTRIC POWER CO.
TOLED	TOLEDO EDISON CO.
TVA	TENNESSEE VALLEY AUTHORITY
TVO	TEOLLISUUDEN VOIMA OY
UEF	UNION ELECTRICA-FENOSA, S.A.
UEF/I/HC	UNION ELECTRICA-FENOSA, S.A. / IBERDUERO, S.A. / HIDROELECTRICA DEL CANTABRICO, S.A.
UKAEA	UNITED KINGDOM ATOMIC ENERGY AUTHORITY
UNION	UNION ELECTRIC CO.
VEB	VEB KKW BRUNO LEUSCHNER
VEPCO	VIRGINIA ELECTRIC POWER CO.
VYNPC	VERMONT YANKEE NUCLEAR POWER CORPORATION
WEP	WISCONSIN ELECTRIC POWER CO.
WPPSS	WASHINGTON PUBLIC POWER SUPPLY SYSTEM
WPS	WISCONSIN PUBLIC SERVICE
YAEC	YANKEE ATOMIC ELECTRIC CO.
A/F/W	ASSOCIATION ACEC, FRAMATOME ET WESTINGHOUSE
ACECOWEN	ACECOWEN (ACEC-COCKERILL-WESTINGHOUSE)
ACLF	(ACECOWEN - CREUSOT LOIRE - FRAMATOME)
AECL	ATOMIC ENERGY OF CANADA LTD.
AEE	ATOMENERGOEXPORT

Table J-7. Other abbreviations used in the data base (Continued).

CONTRACTORS

AEG, KWU	ALLGEMEINE ELEKTRICITAETS GESELLSCHAFT, KRAFTWERK UNION AG
AMN/GETS	ANSALDO MECCANICO NUCLEARE SPA / GENERAL ELECTRIC TECHNICAL SERVICES CO.
APC	ATOMIC POWER CONSTRUCTION LTD.
ASEA	ASEA-ATOM
B&W	BABCOCK & WILCOX CO.
BBK	BROWN BOVERI-KRUPP REAKTORBAU GMBH
BBR	BROWN BOVERI REAKTOR GMBH
CE	COMBUSTION ENGINEERING CO.
CEA	COMMISSARIAT A L'ENERGIE ATOMIQUE
CEA/TECH	COMMISSARIAT A L'ENERGIE ATOMIQUE / TECHNICATOME
CGE	CANADIAN GENERAL ELECTRIC
DAE	DEPARTMENT OF ATOMIC ENERGY, INDIA
EE/B&W/T	THE ENGLISH ELECTRIC CO. LTD / BABCOCK & WILCOX CO. / TAYLOR WOODROW CONSTRUCTION, LTD.
FRAM	FRAMATOME
FRAMACEC	FRAMACECO (FRAMATOME-ACEC-COCKERILL)
GA	GENERAL ATOMIC CORP.
GE	GENERAL ELECTRIC COMPANY (US)
GEC	GENERAL ELECTRIC COMPANY (UK)
GETSCO	GENERAL ELECTRIC TECHNICAL SERVICES CO.
HITACHI	HITACHI LTD.
HRB	HOCHTEMPERATUR-REAKTORBAU GMBH
HTMFS	HITACHI LTD / TOSHIBA CO. / MITSUBISHI / FUJI CO. / SUMITOMO
IA	INTERATOM INTERNATIONALE ATOMREAKTORBAU GMBH
ICL/FE	INTERNATIONAL COMBUSTION LTD. / FAIREY ENGINEERING LTD.
KWU	KRAFTWERK UNION AG
M	MITSUBISHI
NNC	NATIONAL NUCLEAR CORPORATION
NOVATOME	NOVATOME
NPC	NUCLEAR POWER CO. LTD.
OH/AECL	ONTARIO HYDRO / ATOMIC ENERGY OF CANADA LTD.
SIEM,KWU	SIEMENS AG. KRAFTWERK UNION AG
SIEMENS	SIEMENS AG
SKODA	SKODA CONCERN NUCLEAR POWER PLANT WORKS
TNPG	THE NUCLEAR POWER GROUP LTD.
TOSHIBA	TOSHIBA CORPORATION
UKAEA	UNITED KINGDOM ATOMIC ENERGY AUTHORITY
WEST	WESTINGHOUSE ELECTRIC CORPORATION

Table J-8. CHEM Tables (database—all fields).

Field Name	Type	Size	Key	Description	Example
Table Name: C_DESIGN					
Design Notes	M	200		(3) Text describing the design type.	Commercial Hydrogen Chloride Reporting Chemical Facilities...
Design Type	A	20	Yes	(1) Same as Design Type in C_FACIL, a descriptor to indicate what class the facility falls into.	7647-01-0
Table Name: C_FACALL					
Civil Defense Requirement	A	200		(3) Narrative, emergency support to civil population (e.g. evacuation or cooperative arrangements).	Unknown, presumed to meet community right to know.
Completion %	N			(3) Degree of completion.	100
Design Type	A	20		(3) "Smart Default" type plant (key to be published)	7647-01-0
Emergency Service Support	M	10		(3) Narrative, external support available to facility.	Unknown, presumed to meet US Federal Standard
Emergency Systems	M	10		(3) Narrative, emergency response systems (e.g. fire and medical).	Unknown, Presumed to meet US Federal standard
FACILITY_Name	A	60		(3) Facility name, first line of address.	CARIBE GE PRODUCTS INC. ARECIBO PLANT
FID No	A	15	Yes	(1) Facility Identification number. Same as FID in C_PRDCD.	00613CRBGPZENOG
Law of land warfare	A	20		(3) Narrative, treaty or other considerations which would restrict military operations.	Unknown
Op History Capability	A	180		(3) Narrative, how much plant should be able to produce, store, etc.	Unknown
Op History Capacity	A	180		(3) Narrative, how much plant has been able to produce, store, etc.	See Descriptive Op History
Op History Descriptive	A	180		(3) Narrative of what facility has done.	100,000 TO 999,999Lbs for , , Process Aid
Op History Remarks	A	50		(3) Source of information.	TRI database
Other Information	A	100		(1) Internal documentation, source of data.	TRI 1987 - 1990
POC Tel Number	A	20		(3) Published POC telephone number	809-878-1420
Point of Contact	A	50		(3) Published POC	LOU CERCONE

Notes: (1) Internal use of model and/or internal documentation
(2) Model parameters
(3) Emergency responder information

Table J-8. CHEM Tables (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example
Table Name: C_FACALL					
Protective Systems	M	10		(3) Narrative, guard and alarm emergency systems.	Unknown. Presumed to meet US Federal standard
Safety Systems	M	10		(3) Narrative, safety systems and overall emergency response.	Unknown, Presumed to meet US Federal standard
Status	A	1		(3) Planned, Operational, Shutdown, decommissioned, unfinished.	O
Treaty requirements	A	100		(3) Narrative, chemical warfare convention or other treaty status.	Unknown
Table Name: C_LOCATE					
Address 1	A	60		(3) First address line	CARIBE GE PRODUCTS INC. ARECIBO PLANT
Address 2	A	60		(3) Second address line, optional	RD. 129 KM. 41.0 ZENO GANDIA INDUSTRIAL PARK
Address Remarks	A	100		(1) Source of address information	
COUNTRY	A	25		(1,3) Country. Same as Country in COUNTRY table.	US
City	A	25		(3) City	ARECIBO
Comments	A	100		(1) Source of telephone numbers, other remarks	TRI database has no FAX or TELEX
EW	A	1		(3) East or west of the equator	E
FAX	A	20		(3) Main telefacsimile number	
FID No	A	15	Yes	(1) Facility Identification Code. Same as FID No in C_FACILI	00613CRBGPZENOG
Geographic Memo	A	100		(1) Source of lat/long information	TRI 1987 - 1990
LatD	A	3		(2,3) Latitude, in degrees	18
LatM	A	2		(2,3) Latitude minutes	28
LatS	A	2		(2,3) Latitude seconds	0
LongD	A	3		(2,3) Longitude degrees	66
LongM	A	2		(2,3) Longitude minutes	45
LongS	A	2		(2,3) Longitude seconds	0
NS	A	1		(3) North or south of the equator	N
Phone	A	20		(3) Telephone number of facility	809-878-1420
Phone Remarks	A	50		(1) Source of telephone information	Same phone as POC. not necessarily facility
Postal Code / Zip code	A	12		(3) Postal or ZIP code	6132500

Notes: (1) Internal use of model and/or internal documentation
(2) Model parameters
(3) Emergency responder information

Table J-8. CHEM Tables (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example
Table Name: C_LOCATE					
Region/Township	A	25		(3) County, local political unit	ARECIBO
State/Province	A	20		(3) Next higher political division, state or province.	PR
TELEX	A	20		(3) Main TELEX number for facility	Unknown
Table Name: C_MIX					
CID No	A	20	Yes	(1) Identifies a single chemical mixture within a structure.	100-02-7
Chem Agent	A	15	Yes	Used in database, usually the same as CAS Number. A single chemcial.	100-02-7
Mass Fraction	N			Percent of chemical agent by mass in mixture.	1
Solubility Coef	N			How well this chemical agent mixes in the mixture (CID)	1
Table Name: C_NAMES					
Chemical Name	A	15	Yes	Used in database, usually the same as CAS Number.Used in database, usually the same as CAS Number.	
Synonym	A	200	Yes	Another name the chemical compound is known by.	
Used By	A	50		Who uses the Synonym.	
Table Name: C_PRDC					
Average	N			(3) Average or modal amount of agent in structure (kg)	24947.35
Bldg Utilization	N			(2) Precursor, Production, Weaponization, Storage, Industrial production	100
Bldg long axis orient	N			(2) Map azimuth of building long axis (pref. center to front of bldg)	
Bldg utilization note	A	10		(3) Narrative description of building utilization	Commercial
CID No.	A	20	Yes	(1) Identifies a single chemical mixture within a structure. Same as CID in C_Mix.	71-55-6
Droplet Spread Factor	N			(3) 3.5 for neat agents, 2.7 for thickened agents (NUSSE4 3.4.3)	3.5

Notes: (1) Internal use of model and/or internal documentation
(2) Model parameters
(3) Emergency responder information

Table J-8. CHEM Tables (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example
Table Name: C_PRDC					
Duration of release	N			(4) Duration of "smart default" agent release	
E-W location	N			(2) X coordinate (meters) of structure center from facility lat-long	
Elevation of release	N			(4) "Smart default," meters above ground level of release.	
Explosives (wpn ready)	A	20		(3) Narrative description of weapon readiness and/or presence of explosives	unknown
FID No.	A	15	Yes	(1) Facility Identification Number. Same as FID in C_FACIL. Will become number.	00613CRBGPZENOG
Further information	A	70		(3) Source of data, remarks	1,1,1-TRICHLOROETHANE
Line Source Length	N			(4) "Smart default" for Length of line source or sigma y of other release	
Long Dimension bldg (m)	N			(2) Length of structure	
Max	N			(3) Maximum amount of agent in structure (kg)	
Min	N			(3) Minimum amount of agent in structure (kg)	
N-S location	N			(2) Y coordinate (meters) of structure center from facility lat-long	
Scenario Description	A	50		(3) Narrative description of the release event.	Last TRI report 1990
Scenario code	A	10	Yes	(1) Identifies a single type release of a single chemical from within a structure.	1990
Short Dimension bldg (m)	N			(2) Width of structure	
Source Size Horizontal	N			(4) Sigma x of "smart default" source size	
Source size Vertical	N			(4) Sigma z of "smart default" source size	
Source type indicator	N			(4) Line source, point source, pseudo-line source	

Notes: (1) Internal use of model and/or internal documentation
(2) Model parameters
(3) Emergency responder information

Table J-8. CHEM Tables (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example
Table Name: C_PRDC					
Storage type	A	10		(3) Bulk. loose, containerized, refrigerated, weaponized, production stream	
Structure ID	A	20	Yes	(1) Identifies a particular structure (e.g., building) within a facility. Will become a number.	1
Type construction	N			(2) Type of building construction (key to be published separately)	100
Type construction note	A	40		(3) Narrative description of building construction	10,000 TO 99,999
Weight of agent release	N			(4) "Smart default," kg of CID released	
Table Name: C_PROPS					
Boiling point	N			(3) Boiling point at 1 atmosphere in degrees C.	
CAS registry number	A	15		(3) Chemical Abstracts Service Registry Number -- cross ref to potential CD ROM data	100-02-7
Chemical Agent Name	A	15	Yes	Used in database, usually the same as CAS Number.	100-02-7
Common Name	A	70		Name of the compound, comon usage.	4-NITROPHENOL
Decomposition point	N			(3) Temperature, degrees Celsius, at which chemical decomposes.	
Decontaminants	M	1		(3) Text, Common decontaminants used to decontaminate this chemical	
Density Const A	N			(2) Rho sub alpha used in models, coefficient of expansion for chemical	
Density Const B	N			(2) Rho sub beta used in models, coefficient of expansion for chemical	
Empirical formula	A	25		(3) Elemental composition of chemical	
Field behavior	M	1		(3) Narrative description of how the chemical acts in the field.	
Flash point	N			(3) Temperature, degrees Celsius, at which chemical flames with air.	

Notes: (1) Internal use of model and/or internal documentation
(2) Model parameters
(3) Emergency responder information

Table J-8. CHEM Tables (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example
Table Name: C_PROPS					
General	M	1		(3) Text description of agent, any other relevant information.	Chemical in the HPAC database for which no chemical or physical properties have been entered.
Heat of combustion	N			(3) Reaction with oxygen, possibly useful in some models. Energy produced by oxidation.	
Heat of vaporization	N			(2) Heat of vaporization used in some models. Energy difference between liquid and solid phase.	
Liquid density	N			(3) Weight of one milliliter of chemical at STP, grams per cubic centimeter.	
Melting point	N			(3) Melting point., degrees C.	
Molecular formula	A	50		(3) One line structural formula (not suitable for complex agents).	
Molecular structure	G			(3) Graphical representation of compound's structure.	
Molecular weight	N			(2) Mole weight used in some models, grams/mole.	
Notes on detox,f.b.,detox	M	1		Source(s) of data for Field Behavior	
Notes on physical prop	M	1		(1) Source(s) for physical data	
Persistency	M	1		(3) Narrative on persistency of agent, how long chemical survives under field conditions.	
Plant Perm Veloc	N			(2) Rate at which chemical moves into and out of plant surface	
Rapidity: Immediate, etc	A	1		(3) Rapidity of action, how fast chemical toxicity works.	
Solution Volitility Const	N			(2) Binary coefficient for solution volatility c sub b, how well chemcical evaporates from a mixture	
Surface Const A	N			(2) Surface tension constant sigma sub ta	
Surface Const B	N			(2) Surface tension constant sigma sub tb	
Surface Const C	N			(2) Surface tension constant sigma sub tc	

Notes: (1) Internal use of model and/or internal documentation
(2) Model parameters
(3) Emergency responder information

Table J-8. CHEM Tables (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example
Table Name: C_PROPS					
Transportation Code	A	15		(3) Department of Transportation code on toxicity and flammability	
Type: Nerve, Blister, etc	A	20		(3) Type of agent effects.	
Vapor density	N			(3) Department of Transportation code on toxicity and flammability	
Vapor pressure A	N			(2) Antoine Vapor Pressure constant A	
Vapor pressure B	N			(2) Antoine Vapor Pressure constant B	
Vapor pressure C	N			(2) Antoine Vapor Pressure constant C	
Viscosity Const A	N			(2) Viscosity computation value mu sub a	
Viscosity Const B	N			(2) Viscosity computation value mu sub b	
Viscosity Const C	N			(2) Viscosity computation value mu sub c	
Table Name: C_SYMPT					
Chemical agent name	A	15	Yes	Used in database, usually the same as CAS Number.	
Detoxification rate	M	10		Narrative, clinical data on the rate at which body overcomes effects of agent.	
Immed. Danger Life & Hlth	N			Regulatory limit of what causes immidiate danger to life and health.	
Notes on Regulatory Limit	M	10		Sourrce of data.	
Notes on Symptoms, detox	M	10		Source of data	
Perm. Exposure Limit	N			Regulatory limit, permissible exposure limit. mg/kg	
Physiological Symptoms	M	10		Narrative, what the chemical does.	
Primary Action mode	A	12		Respiratory, Percutaneous, Occullar, or Injection	
Safe Human Dose	N			Regulatory limit, permissible exposure limit. mg/kg	

Notes: (1) Internal use of model and/or internal documentation
(2) Model parameters
(3) Emergency responder information

Table J-8. CHEM Tables (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example
Table Name: C_SYMPT					
Short Term Exposure Lmt	N			Regulatory limit, permissible exposure limit. mg/kg	
Threshold Limit Value	N			Regulatory limit, permissible exposure limit. mg/kg	
Time to onset of symptoms	M	10		Narrative describing time for various symptoms to develop.	
Type of Agent	A	10		Nerve, Blister, Choking or Blood	
Table Name: C_TOXIC					
Attack site	A	1	Yes	Chemical's means of ingress into a body, skin, lungs, orally. (1 letter code)	O
Attack text	A	15		Text for attack site code	ORAL
Chem Agent	A	20	Yes	Used in database, usually the same as CAS number	106-93-4
ECt(x)	N			Concentration to produce no effects.	6.300.000000
ED(x)	N			Dose to produce no effects.	90
Info Type	A	1	Yes	Type of information used.	4
L or I	A	2		Lethal or Incapacitation figures.	L
Magnitude of Effect	A	2		What percentage of the population is effected	LO
Notes on Effect	A	255		Source of data.	Man oral LDLo 90 mg/kg - gastrointestinal (hypermotility, diarrhea, nausea or vomiting);...
Probit slope	N				1
Severity	A	1	Yes		L
Table Name: C_VOLATL					
Chem Agent	A	15	Yes	Used in database, usually the same as CAS Number.	75-44-5
Notes	M	10		Source of data.	FM 3-9, 1975
Temp	N		Yes	Temperature, in degrees C	-40
Units	A	1		Vapor Pressure units in mm-Hg, Pascal, or Torr	M
Volatility	N			Vapor pressure.	528000

Notes: (1) Internal use of model and/or internal documentation
(2) Model parameters
(3) Emergency responder information

Table J-9. BIO tables (database—all fields).

Field Name	Type	Size	Key	Description	Example
Table Name: B_DEFULT					
Bio Height of Release	A	20		(2) Default height of release for bio substance and default incident chosen	Ground
Bio Quantity Released	A	30		(2) Default quantity released of named bio substance for the default incident chosen	2 liters
Incident/Scenario	A	30	Yes	(2) e.g., terrorist, academic storage, bunker, small factory, etc. (See B_ONSITE DefaultRelease)	Deep-Frozen Seed Stock Storage
Kind Bio Pathogen	A	30		Family or class of pathogen	
Kind Bio Structure	M	10		(2) Construction/hardness of structure around default incident	- Structure is industrial quality building, not blast hardened to military standards; Large refrig...
SortOrder	N			Order to sort by volume of bio substance released.	1
Table Name: B_FAC					
% Completed	N			(3) Degree of Completion	100
Area Emerg Systems	M	1		(3) Narrative on local area emergency support	
Civil Defense Rqmts	M	1		(3) Narrative on support to civil sector or other cooperative agreements	
FID No	N		Yes	(1) Facility ID number. Same as FID # in B_ONSITE.	1
Facility Name	A	30		(3) Facility Name (first line of address)	Ft Detrick
History/Capacity Source	M	1		(3) Source of Ops History Info	
In-House Emergency Sys	M	1		(3) Narrative of emergency response systems (e.g., fire, medical)	
In-House Protective Sys	M	1		(3) Narrative on safety and security systems	
Kind of Facility	A	10		(3) Production, Storage, Research, etc.	ResearchP4
LID No	N			(1) Location Identification. Equals LID in B_LOCATE	1
Law of Land Warfare	M	1		(3) Narrative on military restrictions	
Operational Capacity	M	1		(3) Narrative of facility capacity	

Notes: (1) Internal use of model and/or internal documentation
(2) Model parameters
(3) Emergency responder information

Table J-9. BIO tables (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example
Table Name: B_FAC					
Operational History	M	1		(3) Narrative of what facility has done	Pilot plant to produce BW agent; Two different 3,000 gallon fermentation tanks...
Other Info	M	1		(1) Internal documentation (sources)	Declared by the US to the Soviet Union in 1987; Reported as studying anthrax, Junin,...
Safety Systems	M	1		(3) Narrative of facility safety systems and overall emergency response	
Status	A	1		(3) Planned, Operational, Shutdown, Decommissioned, Unfinished	
Surge Capacity	M	1		(3) Narrative of surge (maximum) capacity	
Treaty Rqmts	M	1		(3) Narrative on NBC treaty, convention, etc. status	In December 1969, President Nixon renounced the principle of biological warfare. On his...
Table Name: B_IMPACT					
# People We Can Pre-Treat	A	20		(3) How many people can be given the pre-treatments needed (& "as of" date)?	
# People We CanPost-Treat	A	20		(3) How many people can be given post-treatment?	
# Post-Treatmnts Needed	A	10		(3) How many post-treatments are needed?	
# Pre-Treatmts Needed	A	10		(3) How many bio pre-treatments are needed to get reasonable protection?	2-3
Bio Detection Systems	M	10		(3) Text on systems that can detect bio substance	Army: - Cyclonic air filtration unit used to collect air sample; - Collection: Sample...
Bio Pathogen Name	A	30	Yes	(1) Name of Pure Bio Substance	Anthrax
Bio Post-Treatment Avail?	A	3		(3) Is a post-exposure treatment regimen (e.g., antibiotics) identified?	Yes
Bio Pre-Treatment Avail?	A	3		(3) Is a bio pre-treatment (e.g., vaccine shots) available?	Yes

Notes: (1) Internal use of model and/or internal documentation
(2) Model parameters
(3) Emergency responder information

Table J-9. BIO tables (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example
Table Name: B_IMPACT					
Efficacy of Post-Treatmnt	A	10		(3) What is the efficacy of post-treatment?	
Efficacy of Pre-Treat	A	10		(3) What is the efficacy of pre-treatment?	
Time Post-Treatment Needed	A	10		(3) How long should post-treatment be continued?	>30 days
Time Pre-Treatment Needed	A	10		(3) How long does it take before bio pre-treatments are effective?	30 days
Table Name: B_LOCAT					
Address 1	A	50		(3) First Address Line	Scientific Research Institute for Microbiology
Address 2	A	30		(3) Second Address Line (optional)	Military Epidemiology Sector
Address Remarks	M	1		(1) Source of address information	
City	A	20		(3) City name	Sverdlosk
Country	A	2		(3) Same as Country in COUNTRY table.	RU
EW	A	1		(3) East or West of Prime Meridian	E
Facility Internet	A	20		(3) Internet number for facility	
Facility POC	A	45		(3) Published name of point of contact	
Facility fax	A	20		(3) Telefax number of facility	
Facility phone	A	20		(3) Telephone of facility	
Facility telex	A	20		(3) Telex number for facility	
Geographic Memo	M	1		(1) Source for lat/long information, e.g., plant center, headquarters, or nearby center	Sverdlosk; Scientific Research Institute for Microbiology; Military Epidemiology Sector; Minist...
LID No	N		Yes	(1) Location Identification Code. Same as LID No. in B_FAC.	2004
Lat D	N			(3) Latitude, in degrees	
Lat M	N			(3) Latitude, in minutes	
Lat S	N			(3) Latitude, in seconds	
Long D	N			(3) Longitude, in degrees	
Long M	N			(3) Longitude, in minutes	
Long S	N			(3) Longitude, in seconds	
NS	A	1		(3) North or South of the Equator	N

Notes: (1) Internal use of model and/or internal documentation
(2) Model parameters
(3) Emergency responder information

Table J-9. BIO tables (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example
Table Name: B_LOCAT					
Postal Code/ZIP Code	A	12		(3) Postal or ZIP Code of mailing address	
Region/Township	A	20		(3) Local political unit, township, or county in US	
Remarks	M	1		(1) Any documentation not covered above	
State/Province	A	20		(3) Next higher political division, state, or province	
Table Name: B_NAME					
Bio Pathogen Name	A	30	Yes	Name of bio substance	Anthrax
Source	A	50		(1) Source of the bio synonym information	TABD, others
Synonym	A	50	Yes	(3) Alias, common, or other name for bio substance	" Woolsorter's Disease"
Used by	A	40		(3) Nation/Company that uses synonym	
Table Name: B_ONSITE					
Bio Pathogen Name	A	30	Yes	Name of bio substance	Anthrax
DefaultRelease	A	30	Yes	(2) e.g., terrorist, academic storage, bunker, small factory, etc. (see B_DEFULT Incident/Scenario)	
FID No	N		Yes	(1) Facility ID number. Same as FID # in B_FAC.	
Maximum Capacity	A	25		Largest amount of bio at a given location might have	
Maximum Credible Event	A	25		Largest amount of Bio at a location that might realistically be involved in an "event"	
Safety Record	M	1		Text on site safety record (e.g., hazardous release) over time	
Safety Systems	M	1		Safety systems for specific site (both at site and adjacent response capabilities	

Notes: (1) Internal use of model and/or internal documentation
(2) Model parameters
(3) Emergency responder information

Table J-9. BIO tables (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example
Table Name: B_PATH1					
Bio Pathogen Name	A	30	Yes	(1) Pure Bio Substance	Anthrax
Bio Probit Slope	A	10			0.7 [HACB]
Human Bio ID-50	M	10		Exposure to cause 50% of population to be incapacitated.	20,000 spores (inhaled) are needed to infect humans [PMAB]; Humas infectious dose for 50 percent ...
Human Bio LD-50	M	10		Lethal exposure for 50% of population.	Lethal dose for 25 percent of humans (LD-25) is 1000 to 5000 spores [HACB]...
Infectivity Man-to-Man	A	30		(3) Bio substance likelihood to be contagious and cause secondary infections and epidemics	Low[BTWT] Not contagious[PMAB]
Other Bio ID-50	M	10		Exposure to cause 50% of animal population to be incapacitated.	Monkey ID-50 (cynomalgus monkey) is 4,000 spores [HACB]
Other Bio LD-50	M	10		Lethal exposure for 50% of animal population.	
Treatment	M	10		Description of effective treatments.	Moderately effective if diagnosed early and treatment is prolonged [HACB]...
Table Name: B_PATH2					
Bio Entry	A	10	Yes	Pathogen entry point into body, ie. skin, inhalation, ingestion, etc.	Inhaled
Bio Pathogen Name	A	30	Yes	(1) Pure Bio Substance	Anthrax
Mortality	A	30		Anticipated death rate.	90-99% [PMAB] 95-100% [GW]
Post-Treatment	A	1		Y or N, is Post-treatment available.	N
Pre-Treatment	A	1		Y or N, is Pre-treatment available.	N
Table Name: B_PROP					
Areas Found in Nature	M	10		(3) Where/If this bio substance is found in nature	World-wide [MCBA]
Bio Artificial Vectors	M	10		(3) Man-made vectors	Can be cultivated on standard laboratory medium such as agar. [MCBA]

Notes: (1) Internal use of model and/or internal documentation
(2) Model parameters
(3) Emergency responder information

Table J-9. BIO tables (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example
Table Name: B_PROP					
Bio Class	A	10		(1) Bacterial, fungal, rickettsial, viral, etc.	Bacteria
Bio Decay Rate	M	10		(3) Decay rate of Bio [& source]	0.001 decay per minute [HACB]; 0.1% per minute; - Spores in aerosol survive several days....
Bio Description	M	10		(3) Text Description of Bio Substance [& source]	Anthrax simply infects the human body and destroys its ability to function [MCBA]...
Bio Dissemination Modes	M	10		(3) Dissemination modes	Aerosol, Food, and Fomites (e.g., blankets); Aerosol, direct contact, ingestion [TABD]
Bio Form	M	10		(3) e.g., inert spores & how they grow, react, etc.	Sporulating organism, spore or pseudospore; Anthrax in pseudospore form is extremely...
Bio History	M	10		(3) Historical background [and source]	Anthrax is thought to have been the Fifth Plague of Egypt. [MCBA];The bacterium was isolated by ...
Bio Id Number	A	15		(3) Chemical Abstracts Registry Number	
Bio Incubation Period	M	10		(3) Time of incubation [and source]	Few days to 1-2 weeks, depending on challenge. [HACB];1-5 days [BTWT];1-7 days [TABD]
Bio Natural Vectors	M	10		(3) Where found in nature	Common to sheep and cattle. Found in the meat, milk, hides, and hair of infected animals. [MCBA]
Bio Pathogen Name	A	30	Yes	(1) Pure Bio Substance	
Bio Size	M	1		(3) Length/Width of Bio [& source]	Length is 3-8 microns and Width is 1-1.2 microns [PMAB].
Formal Bio Pathogen Name	A	25		(1) Formal/Latin/Medical Name	Anthrax

Notes: (1) Internal use of model and/or internal documentation
(2) Model parameters
(3) Emergency responder information

Table J-9. BIO tables (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example
Table Name: B_PROTEC					
# People We Can Pre-Treat	A	20		(3) How many people can be given the pre-treatments needed (& "as of" date)?	
# People We CanPost-Treat	A	20		(3) How many people can be given post-treatment?	
# Post-Treatmnts Needed	A	10		(3) How many post-treatments are needed?	
# Pre-Treatments Needed	A	10		(3) How many bio pre-treatments are needed to get reasonable protection?	2-3
Bio Decon - Clothing	M	10		(3) What decontamination of clothing is appropriate against this bio substance?	
Bio Decon - Metals	M	10		(3) What metal decontamination is appropriate against this bio substance?	
Bio Decon - Painted	M	10		(3) What decontamination of painted surfaces is appropriate against this bio substance?	
Bio Decon - Pavements	M	10		(3) What decontamination of pavements is appropriate against this bio substance?	
Bio Decon - Rubber	M	10		(3) What decontamination of rubber products is appropriate against this bio substance?	
Bio Decon - Skin	M	10		(3) What skin decontamination is appropriate against this bio substance?	
Bio Decon - Terrain	M	10		(3) What decontamination of terrain is appropriate against this bio substance?	
Bio Detection Systems	M	10		(3) Text on systems that can detect bio substance	Army; - Cyclonic air filtration unit used to collect air sample; - Collection: Sample taken ...
Bio Pathogen Name	A	30	Yes	(1) Name of Pure Bio Substance	Anthrax
Bio Post-Treatment Avail?	A	10		(3) Is a post-exposure treatment regimen (e.g., antibiotics) identified?	Yes
Bio Pre-Treatment Avail?	A	10		(3) Is a bio pre-treatment (e.g., vaccine shots) available?	Yes

Notes: (1) Internal use of model and/or internal documentation
(2) Model parameters
(3) Emergency responder information

Table J-9. BIO tables (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example
Table Name: B_PROTEC					
Bio Protection - Masks	M	10		(3) Text on masks and their protection against this bio substance	Masks work against anthrax; - You must know when to wear the mask in order to be effective ...
Bio Protection - Shelters	M	10		(3) Text on collective protection shelters against this bio substance	Collective protection filters should keep anthrax-sized particles out of collective protection
Bio Protection - Suits	M	10		(3) Text on suits and their protection against this bio substance	Standard US chemical protective ensembles work against anthrax but cause additional heat burden...
Efficacy of Post-Treatmnt	A	10		(3) What is the efficacy of post-treatment?	
Efficacy of Pre-Treat	A	10		(3) What is the efficacy of pre-treatment?	
Time Post-Treatment Needed	A	10		(3) How long should post-treatment be continued?	>30 days
Time Pre-Treatment Needed	A	10		(3) How long does it take before bio pre-treatments are effective?	30 days
Table Name: B_SYMPT					
Bio Pathogen Name	A	30	Yes	(1) Bio Substance name	Anthrax
Person-Person Infectivity	M	10		(3) Bio substance likelihood to be contagious and cause secondary infections and epidemics	Not contagious [TABD]
Symptoms - Eaten	M	20		(3) Physiological symptoms after bio substance uptake through ingestion [& source]	Intestinal anthrax; - Rare in man [TABD]; - Contracted by ingestion of insufficiently cooked ...
Symptoms - Inhaled	M	20		(3) Physiological symptoms after bio substance uptake through inhilation [& source]	Pulmonary Anthrax; - Also known as "woolsorter's disease"; - Toxaemia (poisoning at source of ...

Notes: (1) Internal use of model and/or internal documentation
(2) Model parameters
(3) Emergency responder information

Table J-9. BIO tables (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example
Table Name: B_SYMPT					
Symptoms - Skin	M	20		(3) Physiological symptoms after bio substance uptake through the skin [& source]	Cutaneous anthrax; - Malignant pustule, septicaemia, death in 20% of untreated [HACB] ...
Symptoms - Wound	M	20		(3) Physiological symptoms after bio substance uptake though conventional wounds [& source]	
Time to Onset of Symptoms	A	20		(3) Time interval between uptake and start of symptoms	< 1 day when inhaled
Ways to Infect Humans	M	10		(3) Pathways of human infection with bio substance named (high to low likelihood)	Transmission to Humans; - Inhilation of spores, scratches or abrasions of the skin, wounds, ...

Notes: (1) Internal use of model and/or internal documentation
(2) Model parameters
(3) Emergency responder information

Table J-10. AGENCY tables (database—all fields).

Field Name	Type	Size	Key	Description	Example
Table Name: A_GENCY					
AID No	N		Yes	Agency Identification Number, uniquely identifies each Agency	830
Address1	A	76		Street Address information	1776 Eye St., N.W.
Address2	A	113		Additional street address information.	Suite 400
AgencyAbbrev	A	30		The acronym that the agency is known by.	(USCEA)
AgencyName	A	255		The full name of the agency	U.S. Council for Energy Awareness
Area	A	3		The area of expertise of the agency, Nuclear, Biological or Chemical	N
City	A	25		The city that the agency's headquarters reside in.	Livermore
Country	A	2		2 letter code that links to "COUNTRY.DB", "ISO code" field	US
FNameOfHead	A	28		The first name of the person who heads the agency.	Phillip
Function	A	50		The point of contact's job function.	Ms. Cantelit handles all contacts with the public for the organization.
LNameOfHead	A	23		The last name of the person who heads the agency.	Bayne
MName/InitOfHead	A	12		The middle name or initial of the person who heads the agency.	X.
PointOfContact	A	45		The primary contact person at the agency.	Janet Cantelit
State	A	15		The state where the agency's headquarters resides in.	CA
TitleOfHead	A	50		The title of the person who heads the agency.	President & CEO
Zip/PostalCode	A	23		The postal code of the agency.	20006-3708
Table Name: A_PHONE					
AID No	N		Yes	Agency Identification Number	830
HomeWorkOther	A	1		H for Home number, W for Work number and O for an Other or alternate number.	W
Phone	A	48	Yes	A telephone number or other contact number for the agency.	+44 71 828 2111
VoiceFaxTelex	A	1	Yes	V for Voice, F for Fax number, T for Telex number, I for Internet address.	V

Table J-11. EXPERTS tables (database—all fields).

Field Name	Type	Size	Key	Description	Example
Table Name: X_ADDRES					
Address1	A	140		First Address Line	NIH. 5000 Connecticutt Ave.
Address2	A	45		Second address line, (Suite No., PO Box, etc.)	Room 259
City	A	35		City for mailing address	Washington
Country	A	2		The nation where the facility is located	US
HomeWorkOther	A	1	Yes	Is this a Home, Work or Other number	W
PID No	N		Yes	Person Identification Number	1234
PostalZipCode	A	20		Postal or Zip code for the mailing address	20001-0259
StateProvince	A	15		The state or province of the mailing address	DC
Table Name: X_CONTCT					
Initial Contact Date	D			When was the initial contact made.	09/03/93
PID No	N		Yes	Personal Identification Number	1234
Source of Contact	A	60		How was this person brought to DNA's attention initially.	Met at AMA conference in Atlanta. Member of panel discussion on radiology and health.
Table Name: X_CURWRK					
Current Work	M	60		Description of person's current area of interest	Effects of gamma rays on hypochondriac baby boomers.
PID No	N		Yes	Personal Identification Number	1234
Table Name: X_EDUCAT					
Degree	A	10	Yes	Degree received	Ph. D.
Major	A	15	Yes	Major area of study	8, Physics
PID No	N		Yes	Personal Identification Number	1234
School	A	40	Yes	College or University attended	Massachusetts Institute of Technology
Thesis	A	60		Thesis topic and/or title	The quantum leap into Iodine.
Table Name: X_MEETING					
Meeting Date	D		Yes	Date the meeting took place	7/4/94
PID No	N		Yes	Personal Identification Number	1234
Results of meeting	M	60		Summary of results of the meeting	Wants to share research notes with us.

Table J-11. EXPERTS tables (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example
Table Name: X_PERS					
Dept_Div	A	50		The department or division the expert works for.	Nuclear Medicine
First Name	A	15		The expert's first name	John
Internet Address	A	30		The expert's address on the Internet.	JBNuklear@nucmed.nih.gov
Last Name	A	20		The expert's last name.	Nuklear
Middle Initial	A	20		The expert's midddle initial (or middle name)	Q.
Organization	A	75		The organization the expert is associated with.	National Institutes of Health
PID No	N		Yes	Person Identification Number	1234
Telex	A	20		The expert's telex number.	n/a
Title	A	6		The expert's title.	Director of Modern Medicine
Table Name: X_PHONE					
AreaCode	A	3		Telephone Area Code	202
Home/Work/Other	A	2		Is this a home phone, a work phone, or another phone number for contacting the person	W
PID No	N		Yes	Personal Identification Number	1234
PhoneNo	A	18	Yes	The phone number	456-1357
Voice/Fax	A	2		Is this a voice or fax line	V
Xtension	A	4		An extension for the phone number, if available.	n/a
Table Name: X_PUBS					
CoAuthors	A	30		Any CoAuthors' names	n/a
Date	D			Date of publishing	6/1/90
PID No	N		Yes	Personal Identification Number	1234
Publisher	A	20		Publishing company	Addison-Wesley
Title	A	30	Yes	Title of book or article	Firestorm: What happens next!
Table Name: X_XPRTIS					
Area	A	1	Yes	The general area of expertise.	N
Details	M	20		Description of expertise	Medical aspects of chemical defense
PID No	N		Yes	Personal Identification Number	1234
Specific Area	A	80	Yes	A specific area of expertise.	HP

Table J-11. EXPERTS tables (database—all fields) (Continued).

Field Name	Type	Size	Key	Description	Example
Table Name: X_XP_CD					
Code	A	10	Yes	Specific area of expertise code (primarily for Nuclear experts)	HP
Description	A	80		Description of code	Health Physics

Table J-12. Complementary Efforts (database—all fields).

Field Name	Type	Size	Key	Description	Example
Complementary Effort	A	50		Title/description of the project.	Nuclear Materials Data Base
Organization	A	50		The funding organization.	Department of Energy
Principal Investigator	A	255		Person or people in charge of the project.	Michael A. Farmer, Chief Scientist, Advanced Technology and Applications
Objectives	M	200		Detailed description of the effort.	Provide coordination and assistance to nuclear incidents worldwide. Provide databases of ...
Status of Project	A	100		What is the current status of the project.	Operational
Funding profile	A	255		How is funding obtained for the project.	In Federal Budget, supported by FEMA and DNA
Sponsor	A	50		Who provides oversight for the effort.	DNA and FEMA
Supported Agencies	M	200		What organizations benefit from the effort.	FEMA, Corps of Engineers, EPA and all Federal agencies responding to emergencies.
Publications	M	200		What publications does the effort produce.	See Publication List in database.
Address	A	255		Name and address of the organization.	Battelle, PNL, 901 D St., SW, Suite 900, Washington, DC, 20024
Phone Number	A	20		Main phone number for the effort.	202 646-7605
Fax Number	A	30		Main fax number for the effort.	202 646-5233
TELEX	A	30		TELEX number for the effort.	AU 112645 ATO
E-mail	A	100		E-mail address.	mafarmer@nmdb.battelle.gov
Remarks	A	100		Source of data.	WB

Table J-13. Lat_long script.

```
Object:       #Script1
MethodName:   run
Source:       method run(var eventInfo Event)
              var
                  longD, longM, longS, latD, latM, latS, LAT, LONG   String
                  hcnTC  TCursor
                  hcnT    Table
                  s    Script
              endVar

              s.attach()
              s.enumSourceToFile(":s:lat_long.txt")    ; for
                                                       ; documentation purposes

              hcnT.attach("TRI.DB")
              hcnTC.open(hcnT)
              hcnTC.edit()

                  scan hcnTC:
                      LAT = hcnTC."LATITUDE"
                      LONG = hcnTC."LONGITUDE"

              ; parse the Latitude string for degrees, minutes and
              ; seconds

                      if   LAT.size()=6 then        ; if the degrees are
                           latD = LAT.subStr(1,2)   ; greater than 9,
                           latM = LAT.subStr(3,2)   ; there will be 6
                           latS = LAT.subStr(5,2)   ; digits in the
                                                    ; latitude string

                      else
                           if   LAT.size()=5 then        ; if degrees are
                                latD = LAT.subStr(1,1)   ; less than 10,
                                latM = LAT.subStr(2,2)   ; there will be only
                                latS = LAT.subStr(4,2)   ; 5 digits in the
                                                         ; string
                           else
                                latD = "xx"
                                latM = "xx"
                                latS = "xx"
                                endIf
                           endIf

               ; place latitude values into the appropriate fields
                       hcnTC.LatD = latD
                       hcnTC.LatM = latM
                       hcnTC.LatS = latS
```

Table J-13. Lat_long script (Continued).

```
; parse the Longitude string for degrees, minutes and
; seconds
    if  long.size()=7 then          ; if degrees are
        longD = LONG.subStr(1,3)    ; greater than 99,
        longM = LONG.subStr(4,2)    ; there will be 7
        longS = LONG.subStr(6,2)    ; characters in the
                                    ; string
    else
        if  long.size()=6 then          ; if degrees are
            longD = LONG.subStr(1,2)    ; between 9 and 99,
            longM = LONG.subStr(3,2)    ; there will be 6
            longS = LONG.subStr(5,2)    ; digits in the
                                        ; string
        else
            if  LONG.size()=5 then          ; if the degrees are
                longD = LONG.subStr(1,1)    ; less than 10,
                longM = LONG.subStr(2,2)    ; there will be
                longS = LONG.subStr(4,2)    ; 5 digits in
                                            ; the string
            else
                longD = "xx"
                longM = "xx"
                longS = "xx"
            endIf
        endIf
    endIf

; place longitude values into the appropriate fields

    hcnTC.LongD = longD
    hcnTC.LongM = longM
    hcnTC.LongS = longS

  endScan

hcnTC.endEdit()

endmethod
```

Table J-14. Name_ph script.

```
Object:       #Script1
MethodName:   run
Source:       method run(var eventInfo Event)
              var
                  vlen     SmallInt
                  name, phnum, combo        String
                  hcnTC  TCursor
                  hcnT    Table
                  s    Script
              endVar

              s.attach()
              s.enumSourceToFile(":s:name_ph.txt")      ; for documentation
                                                        ; purposes
              hcnT.attach("TRI.DB")
              hcnTC.open(hcnT)
              hcnTC.edit()

              scan hcnTC:

              ; read in the contents of "PUBLIC_CON", search for the
              ; "/" delimiter and split the field into two fields,
              ; Name, and Phone

                  combo = hcnTC."PUBLIC_CON"
                  vlen = size(combo)            ; this is the length
                                                ; of the original field
                  if vlen >= 13 then
                      if   combo.subStr(vlen-12, 1) = "/" then  ; test
                                                                ; for the delimiter
                          name = combo.subStr(1, vlen-13)
                          phone = combo.subStr(vlen-11, vlen)
                      else
                          name = "xxx"
                          phone = "xxx"
                      endIf
                  else
                      name = "yyy"
                      phone = "yyy"
                  endIf
                  hcnTC."Name" = name
                  hcnTC."Phone" = phone
              endScan
              endmethod
```

Table J-15. Max_amnt script.

```
Object:       #Script1
MethodName:   Const
Source:       Const
              kg = .45359237
                  ; conversion factor to change
                  ; pounds to kilograms
              endConst
```

```
Object:       #Script1
MethodName:   run
Source:       method run(var eventInfo Event)
              var
                  maxAmount, x1, x2, z        String
                  len, counter, num1, num2    Number
                  hcnTC  TCursor
                  hcnT   Table
                  s   Script
              endVar

              s.attach()
              s.enumSourceToFile(":s:max_amnt.txt")      ; for documenta-
                                                         ; tion purposes

              hcnTC.open("HCN1.DB")
              hcnTC.edit()

              scan hcnTC:

                  maxAmount = hcnTC."MAXIMUM_AM"
                  len = size(maxAmount)
                  x1 = ""                                ; start with a blank in x1 and x2
                  x2 = ""

                  if  len = 0 then              ; a length of "0" indicates
                                                ; a blank field
                      num1 = 0
                      num2 = 0
                      hcnTC."MaxLow" = num1
                      hcnTC."MaxHigh" = num2
                      loop
                  endIf

                  if  len <> 0 then     ; test for the case where text
                                        ; is "1 BILLION TO ...."
                      if maxAmount.subStr(3,4) = "BILL" then
                          num1 = 1000000000 * kg
                          num2 = 1000000000 * kg
```

Table J-15. Max_amnt script (Continued).

```
            hcnTC."MaxLow" = num1
            hcnTC."MaxHigh" = num2
        loop
        endIf
    endIf

if  len <> 0 then
    for counter from 1 to len step 1          ; step through
        z = maxAmount.subStr(counter,1)       ; the text
        switch                                ; string looking
            case z = "1": x1 = x1+z           ; for anything
            case z = "2": x1 = x1+z           ; that is not a
            case z = "3": x1 = x1+z           ; digit or a ","
            case z = "4": x1 = x1+z           ; ends
            case z = "5": x1 = x1+z           ; the for loop
            case z = "6": x1 = x1+z           ; and signifies
            case z = "7": x1 = x1+z           ; the end of the
            case z = "8": x1 = x1+z           ; first number.
            case z = "9": x1 = x1+z           ; x1 accumulates
            case z = "0": x1 = x1+z           ; the string
            case z = ",": x1 = x1             ; that will be
            otherwise: quitLoop               ; the low
        endSwitch                             ; number.
    endfor
endIf

num1 = numVal(x1) * kg

if  len <> 0 then
    for counter from counter+4 to len step 1  ; the
        z = maxAmount.subStr(counter,1)       ; second number
        switch                                    ; is always after
            case z = "1": x2 = x2+z               ; a " TO ", the rest
            case z = "2": x2 = x2+z               ; of the algorithm
            case z = "3": x2 = x2+z               ; is the same, x2
            case z = "4": x2 = x2+z               ; accumulates the
            case z = "5": x2 = x2+z               ; digits that build
            case z = "6": x2 = x2+z               ; the second number.
            case z = "7": x2 = x2+z
            case z = "8": x2 = x2+z
            case z = "9": x2 = x2+z
            case z = "0": x2 = x2+z
            case z = ",": x2 = x2
            case z = " ": quitLoop
            otherwise: quitLoop
        endSwitch
    endfor
endIf
num2 = numVal(x2) * kg
```

Table J-15. Max_amnt script (Continued).

```
        hcnTC."MaxLow" = num1
        hcnTC."MaxHigh" = num2

    endScan
    hcnTC.endEdit()
    endmethod
```

Table J-16. Master form source code.

```
Object:      #Page2.closeButton
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             close()
             endmethod
```

```
Object:      #Page2.agencyBox.aBtn
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             var
                 expForm Form
             endVar

             ; attach the AGENCY form and open it,
             ; (responsible agency database)

             expForm.open(":AGENCY:AGENCY.FSL", WinStyleDefault)
             disableDefault

             expForm.wait()

             endMethod
```

```
Object:      #Page2.expertBox.xBtn
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             var
                 expForm Form
             endVar

             ; attach the EXPERT form and open it, experts database

             expForm.open(":EXPERTS:PERSON.FSL", WinStyleDefault)
             disableDefault

             expForm.wait()

             endMethod
```

```
Object:      #Page2.bioBox.bBtn
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             var
                 bioForm Form
             endVar
```

Table J-16. Master form source code (Continued).

```
; attach the BIO form and open it,
; biological production facilities

bioForm.open(":BIO:BIO.FSL", WinStyleDefault)
disableDefault

bioForm.wait()

endMethod
```

Object: #Page2.nucBox.nBtn
MethodName: pushButton
Source:

```
method pushButton(var eventInfo Event)
var
dnaNucPForm  Form
endVar

; attach the N_ED form and open it, Nuclear power reactors
dnaNucPForm.open(":NUCLEAR:N_F_QRY.FSL", WinStyleDefault)
disableDefault

dnaNucPForm.wait()

endMethod
```

Object: #Page2.nucBox.nLocBtn
MethodName: pushButton
Source:

```
method pushButton(var eventInfo Event)
var
    ChekLid  Form
    countryQ    Query
endVar

message("RUNNING QUERY!!!")
if  countryQ.readFromFile(":nuclear:chek_lid.qbe")
    then
        message("Query file CHEK_LID.QBE read successfully!")
    else
        msgInfo("WARNING","Failure reading CHEK_LID.QBE")
    endIf

    if  countryQ.executeQBE()
        then
            sound(220,50)
            sound(330,50)
            sound(440,50)
            sound(550,50)
```

Table J-16. Master form source code (Continued).

```
                sound(660,50)
                sound(770,50)

            else
                sound(270,50)
                sound(260,50)
                sound(250,50)
                sound(240,50)
                sound(230,50)
                sound(220,50)

                msgInfo("WARNING","Query failed")
        endif
    ChekLid.open(":NUCLEAR:CHEK_LID.FSL", WinStyleDefault)
    doDefault
    message("")

    ChekLid.wait()

    endMethod
```

```
Object:      #Page2.nucBox.nreBtn
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             var
                 nreForm  Form
             endVar

             ; attach the NRE_ED form and open it,
             ; Nuclear research reactors
             nreForm.open(":NUCLEAR:NRE_ED.FSL", WinStyleDefault)
             disableDefault

             nreForm.wait()

             endMethod
```

```
Object:      #Page2.nucBox.nfcBtn
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             var
                 nfcForm Form
             endVar

             ; attach the NFC_ED form and open it,
             ; Nuclear fuel cycle facilities
             nfcForm.open(":NUCLEAR:NFC_ED.FSL", WinStyleDefault)
```

Table J-16. Master form source code (Continued).

```
disableDefault
nfcForm.wait()

endMethod
```

```
Object:      #Page2.chemBox.facLocBtn
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             var
                 cLocForm Form
             endVar

             ; attach the LOC_DET form and open it,
             ; chemical facility location details

             cLocForm.open(":CHEM:LOC_DET.FSL", WinStyleDefault)
             disableDefault

             cLocForm.wait()

             endMethod
```

```
Object:      #Page2.chemBox.chemPrdcBtn
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             var
                 cPrdForm, chemForm Form
                 chemQ  Query
                 chemName  String
             endVar

             chemName.view("Enter a chemical to search for.")

             chemQ = Query
             ANSWER: :PRIV:ANSWER.DB

             :CHEM:C_NAMES.DB  | Chemical Name | Synonym     |
                     | Check _join1! | Check ~chemName  |

             :CHEM:C_MIX.DB   | CID         |
                     | _join1,_join2 |

             :CHEM:C_PRDC_X.DB | FID No. | CID No. |
                     | _join3  | _join2  |

             :CHEM:C_FACALL.DB | FID No    | FACILITY_Name |
                     | Check _join3, _join4 | Check       |
```

Table J-16. Master form source code (Continued).

```
:CHEM:C_LOCATE.DB | FID No          | City       | State/Province
| COUNTRY        |
        | _join4     | Check                | Check      | Check      |

EndQuery

if   chemQ.executeQBE()
     then
          beep()
          sleep(50)
          beep()
          sleep(50)
          beep()
          sleep(50)

          ; hide()      ;hide the current form

          ; attach the CHEM_FAC form and open it,
          ; Chemical facilities
     chemForm.open(":CHEM:CHEM_FAC.FSL",
     WinStyleDefault,1440*.125,1440*.125,1440*8,1440*6)
     ;disableDefault
     chemForm.bringToTop()
     chemForm.wait()
     show()          ; bring the current form back to
                     ; the screen
else
     sound(110,50)
     sound(120,50)
     sound(130,50)
     sound(140,50)
     sound(150,50)
     msgInfo("Problem","Query failed!")
endIf

; attach the CHEM_PRD form and open it, chemicals produced

;cPrdForm.open(":CHEM:C_F_TMP.FSL", WinStyleDefault)
;disableDefault

;cPrdForm.wait()

endMethod
```

Table J-16. Master form source code (Continued).

```
Object:       #Page2.chemBox.chemFacBtn
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  chemForm Form
              endVar

              ; attach the C_FAC form and open it,
              ; chemical production facilities

              chemForm.open(":CHEM:C_FAC.FSL", WinStyleDefault)
              disableDefault

              chemForm.wait()

              endMethod
```

Table J-17. Nuclear facilities filter (N_F_QRY) form source code.

```
Object:       NUCLEAR_FACILITIES_FILTER
MethodName:   Uses
Source:       Uses ObjectPal

                  setVar(inputVar AnyType)

              endUses
```

```
Object:       NUCLEAR_FACILITIES_FILTER
MethodName:   Var
Source:       Var
                  status, desType, modType, country, ns, ew String
                  lat, long, plusMinus          SmallInt
                  hpacLib     Library
                  inputVar    AnyType
              endVar
```

```
Object:       NUCLEAR_FACILITIES_FILTER
MethodName:   open
Source:       method open(var eventInfo Event)

                  if eventInfo.isPreFilter() then
                  ;// This code executes for each object on the form:

                  else
                  ;// This code executes only for the form:

                      hpacLib.open(":WORK:HOLDVAR")

                  endIf

              endMethod
```

```
Object:       NUCLEAR_FACILITIES_FILTER
MethodName:   arrive
Source:       method arrive(var eventInfo MoveEvent)

                  if eventInfo.isPreFilter() then
                  ;// This code executes for each object on the form:

                  else
                  ;// This code executes only for the form:

                  ;setting the default values for the global variables
```

Table J-17. Nuclear facilities filter (N_F_QRY) form source code (Continued).

```
            status = ""
            desType = ""
            modType = ""
            lat = 0
            long = 0
            ns = "N"
            nsField = ns
            ew = "E"
            ewField = ew
            plusMinus = 5
            plusMinusField = plusMinus
            country = ""
        endIf

    countryBox.color = Gray
    latLongBox.color = Gray

    endMethod
```

```
Object:      #Page2.#Button33
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 close()
             endMethod
```

```
Object:      #Page2.latLongBox
MethodName:  arrive
Source:      method arrive(var eventInfo MoveEvent)
                 if  latLongBox.color=Black
                     then
                         message("Remember, choose either latitude and
                         longitude or Country!")
                         latLongBox.color=Gray
                 endIf
             endMethod
```

```
Object:      #Page2.latLongBox
MethodName:  depart
Source:      method depart(var eventInfo MoveEvent)

                 countryBox.color = Black
                 countryField.value=""

             endMethod
```

Table J-17. Nuclear facilities filter (N_F_QRY) form source code (Continued).

```
Object:       #Page2.latLongBox.nsField
MethodName:   arrive
Source:       method arrive(var eventInfo MoveEvent)
                  nsField.value = "N"
              endMethod
```

```
Object:       #Page2.countryBox.viewButton
MethodName:   Uses
Source:       Uses    ObjectPal

              setVar(inputVar AnyType)

              endUses
```

```
Object:       #Page2.countryBox.viewButton
MethodName:   Var
Source:       Var

              endVar
```

```
Object:       #Page2.countryBox.viewButton
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  iForm   Form
                  j    String
              endVar

              if countryField="" then
                  msgInfo("WARNING","No Image found")
              else
                  inputVar =
                  countryField.subStr(countryField.size()-1,2)
                  hpacLib.setVar(inputVar)
                  iform.open(":NUCLEAR:IMAGE.FSL")
                  iform.wait()
              endIf

              endMethod
```

```
Object:       #Page2.countryBox.countryField
MethodName:   arrive
Source:       method arrive(var eventInfo MoveEvent)
              if (lat<>0 or long<>0 or plusMinus<>0) AND
              countryBox.color=Black
```

Table J-17. Nuclear facilities filter (N_F_QRY) form source code (Continued).

```
        then
            lat=0
            long=0
            plusMinus=0
            ns=""
            ew=""
            countryBox=Gray
    endIf
    endMethod
```

```
Object:      #Page2.countryBox.countryField
MethodName:  depart
Source:      method depart(var eventInfo MoveEvent)
             if countryField <> ""
                 then lat=0
                     long=0
                     plusMinus=0
                     ns=""
                     ew=""
                     latLongBox.color=Black
             endIf
             endMethod
```

```
Object:      #Page2.queryButton
MethodName:  mouseEnter
Source:      method mouseEnter(var eventInfo MouseEvent)
                 message("Run the query that will select the subset of
                 the facilities table.")
             endMethod
```

```
Object:      #Page2.queryButton
MethodName:  mouseExit
Source:      method mouseExit(var eventInfo MouseEvent)
                 message("")
             endMethod
```

```
Object:      #Page2.queryButton
MethodName:  action
Source:      method action(var eventInfo ActionEvent)

             endMethod
```

```
Object:      #Page2.queryButton
```

Table J-17. Nuclear facilities filter (N_F_QRY) form source code (Continued).

MethodName: pushButton

Source:

```
method pushButton(var eventInfo Event)
var
    ql1, sLAD, sLOD              String
    stat, dType, cntry, country                String
    slaMin, slaMax, sloMin, sloMax                 String
    laMax, laMin, loMax, loMin                     SmallInt
    tv   TableView
    dnaNucPForm  Form
    q    Query
endVar

status = plantStatusField.value
Switch
    Case status="Operational": status="O"
    Case status="Under Construcion": status="C"
    Case status="Planned": status="P"
    Case status="Shut Down": status="S"
endSwitch
cntry = countryField.value
if cntry <> "" then
    country = cntry.substr(cntry.size()-1,2)
else
    country = ""
endIf

desType = desTypeField.value
modType = modTypeField.value
lat = latField.value
long = longField.value
plusMinus =plusMinusField.value
ns = nsField.value
ew = ewField.value

;*******************************************************
;test for the latitude and longitude being out of bounds
if lat<0
    then lat=0
endIf
if lat>90
    then lat=90
endIf
if long<0
    then long=0
endIf
if long>180
    then long=180
endIf
```

Table J-17. Nuclear facilities filter (N_F_QRY) form source code (Continued).

```
;*********************************************************
;set the size of the latitude and longitude box
laMin = lat - plusMinus
laMax = lat + plusMinus
loMin = long - plusMinus
loMax = long + plusMinus

;*********************************************************
;change to string values
slaMin = strVal(laMin)
slaMax = strVal(laMax)
sloMin = strVal(loMin)
sloMax = strVal(loMax)

;*********************************************************
;test to see if the box goes out of bounds
if laMin < 0
    then laMin = 0
endIf
if loMin < 0
    then loMin = 0
endIf

if laMax > 90
    then laMax = 90
endIf

if loMax > 180
    then loMax = 180
endIf

;*********************************************************
;create string for the query
sLAD =">"+strVal(laMin)+", <"+strVal(laMax)
sLOD =">"+strVal(loMin)+", <"+strVal(loMax)

;*********************************************************
;test to see if country has been selected or lat/long
Switch
    ;Country was selected, but not lat/long
    Case country<>"" AND (latField.value = "" and
    longField.value = ""):
        sLAD = ""
        sLOD = ""
        ew = ""
        ewField.value = ""
        ns = ""
        nsField.value = ""
        plusMinus = 0
```

Table J-17. Nuclear facilities filter (N_F_QRY) form source code (Continued).

```
        plusMinusField.value = ""
        latLongBox.color = Black
        message("case 1")

    ;Country not selected and lat/long selected
    Case country = "" AND (latField.value <> "" or
    longField.value <> ""):
        countryBox.color = Black
        message("case 3")

    Case country="" AND (latField.value = "" and
    longField.value = ""):
        sLAD = ""
        sLOD = ""
        ew = ""
        ewField.value = ""
        ns = ""
        nsField.value = ""
        plusMinus = 0
        plusMinusField.value = ""
        latLongBox.color = Black
        countryBox.color = Black
        message("case 4")

    otherWise :
    ;Country selected and lat/long selected
    ;Case country<>"" AND (latField.value <> "" or
    longField.value <> ""):
        msgInfo("WARNING","Select either country or
        Lat/long, not both!")
        message("case 2")
        return

endSwitch

beep()
;*********************************************************
;query string, fill in the variables.

q11 = "Query\n" +
    "ANSWER::nuclear:n_fac_q.db\n\n" +
    ":nuclear:n_facil.db | FID No | Facility Name |
    | LID No | Status | Completion % |\n" +
        "| Check | Check | Check _join1  |
        | Check "+status+" | Check |\n\n" +

    ":nuclear:n_facil.db | Design Type | Model |
    | Reactor Manufacturer | Power Capacity MWE |\n" +
        "| Check "+desType+" | Check "+modType+" |
```

Table J-17. Nuclear facilities filter (N_F_QRY) form source code (Continued).

```
        | Check | Check |\n\n" +
    ":nuclear:N_FACIL.DB | Thermal Power MWt |
    | Generator Supplier | Architect/Engineer |\n" +
        "| Check   | Check   | Check   |\n\n" +
    ":nuclear:N_FACIL.DB | Constructor | Operator |
    | Owner  | Comments | Specific Power |\n" +
        "| Check   | Check   | Check  | Check   |
        | Check  |\n\n" +
    ":nuclear:N_FACIL.DB | Steam Generator Design |
    | Containment Type | Turbine Supplier |\n" +
        "| Check   | Check   | Check   |\n\n" +
    ":nuclear:N_LOCAT.DB | LID No | LAD   | NS | LOD   |
    | EW | Country  |\n" +
        "| _join1 | "+sLAD+" | "+ns+" |  "+sLOD+" |
        | "+ew+" | "+country+" |\n\n" +
    "EndQuery"

if q.readFromString(ql1) then
    doDefault
    message("Query is running")
    beep()

    if executeQBE(q, ":nuclear:n_fac_q.db") then
        message("Query ran successfully.")
        sound(50,100)
;       tv.open(":nuclear:n_fac_q.db")

; attach the N_ED form and open it, Nuclear power reactors
dnaNucPForm.open(":NUCLEAR:N_ED.FSL", WinStyleDefault)
disableDefault

dnaNucPForm.wait()
    else
        msgInfo("WARNING", "Query failed!")
    endIf
endIf

message("Query is finished")
latLongBox.color=Gray
countryBox.color=Gray

endMethod
```

Table J-18. Nuclear power reactor edit (N_ED) form source code.

```
Object:       #FormData1
MethodName:   Uses
Source:       Uses ObjectPal

                  setVar(inputVar AnyType)

              endUses
```

```
Object:       #FormData1
MethodName:   Var
Source:       Var
                  RecNum          Number
                  tcChange    TCursor
                  sVal1, sVal2    String
                  nVal1, nVal2    Number
                  aVal1, aVal2    AnyType
                  hpacLib     Library
                  inputVar    AnyType
              endVar
```

```
Object:       #FormData1
MethodName:   open
Source:       method open(var eventInfo Event)

                  if eventInfo.isPreFilter() then
                      ;// This code executes for each object on the form:

                  else
                      ;// This code executes only for the form:
                      hpacLib.open(":work:holdVar")
                  endIf

              endMethod
```

```
Object:       #FormData1
MethodName:   arrive
Source:       method arrive(var eventInfo MoveEvent)

              if eventInfo.isPreFilter()
                  then
                      ; This code executes for each object on the form.

                  else
                      ; This code executes only for the form.
                  doDefault
                  RecNum = 1
```

Table J-18. Nuclear power reactor edit (N_ED) form source code (Continued).

```
            endIf
            endMethod
```

```
Object:     #FormData1
MethodName: depart
Source:     method depart(var eventInfo MoveEvent)

            if eventInfo.isPreFilter()
                then
                    ; This code executes for each object on the form.
                    active.endEdit()
                else
                    ; This code executes only for the form.

            endIf
            endMethod
```

```
Object:     #FormData1
MethodName: mouseDouble
Source:     method mouseDouble(var eventInfo MouseEvent)

            if eventInfo.isPreFilter()
                then
                    ;// This code executes for each object on the form:
                    active.edit()
                else
                    ;// This code executes only for the form:

            endIf

            endMethod
```

```
Object:     #FormData1
MethodName: mouseRightDown
Source:     method mouseRightDown(var eventInfo MouseEvent)

            if eventInfo.isPreFilter()
                then
                    ;// This code executes for each object on the form:
                    active.edit()
                else
                    ;// This code executes only for the form:

            endIf
            endMethod
```

Table J-18. Nuclear power reactor edit (N_ED) form source code (Continued).

```
Object:       #FormData1
MethodName:   changeValue
Source:       method changeValue(var eventInfo ValueEvent)
              var
                  tc   TCursor
                  tblName    String
              endVar

              if eventInfo.isPreFilter()
                  then
                      ;// This code executes for each object on the form:
                      doDefault
                      ;force the new data to post
                      ;msgInfo("DEBUG 2", "Value of this field is:  "+ active.value)
                      if   tcChange.open(":edit:edit.db") then
                           message("Editing EDIT.DB")
                           sleep(500)
                           tcChange.edit()
                           tcChange.end()
                           tcChange.insertAfterRecord()
                           tcChange.Date = today()
                           tcChange.Time = time()
                           tcChange.FieldVal = strVal(active.value)
                           tcChange.FieldName = active.fieldName
                           tcChange.FieldType = active.fieldType
                           tcChange.TableName = active.self.TableName

                           msgInfo("TABLE NAME",active.self.tableName)
                           tc.open(tcChange.TableName)
                           tc.attach(active)
                           tc.fieldValue(1,aVal1)

                           msgInfo("DEBUG","aVal1 = "+ strVal(aVal1))
                           tcChange.RecordNum = aVal1
                           tcChange.ActionTaken = "Changed"
                           sVal1 = "Enter your NAME and Reason for the change."
                           sVal1.view()
                           tcChange.Comments = sVal1
                           tcChange.endEdit()

                           message ("Done")
                           sound(1320,50)
                      else
                           msgInfo("WARNING","We have a problem here, could not write to
                           EDIT.DB")

                      endIf
                  else
                      ;// This code executes only for the form:
```

Table J-18. Nuclear power reactor edit (N_ED) form source code (Continued).

```
        endIf

    endMethod
```

```
Object:      #FormData1
MethodName:  mouseClick
Source:      method mouseClick(var eventInfo MouseEvent)

    if eventInfo.isPreFilter()
        then
            ;// This code executes for each object on the form:
        else
            ;// This code executes only for the form:

    endIf

    endMethod
```

```
Object:      SecondPage.#Box190.rtnButton
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
    var
        f   Form
    endVar

    ; return to the master form

    close()
    endMethod
```

```
Object:      SecondPage.#Box190.titleBlock2.#Button179
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
    moveToPage(1)
    endMethod
```

Table J-18. Nuclear power reactor edit (N_ED) form source code (Continued).

```
Object:       FirstPage.mainBox.viewButton1
MethodName:   Uses
Source:       Uses    ObjectPal

              setVar(inputVar AnyType)

              endUses
```

```
Object:       FirstPage.mainBox.viewButton1
MethodName:   Var
Source:       Var

              endVar
```

```
Object:       FirstPage.mainBox.viewButton1
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  iForm   Form
                  j    String
              endVar

                  inputVar = strVal(LID_No)
              ;   inputVar = inputVar.subStr(1,inputVar.size()-3)
                  msgInfo("TESTING","Value of field is: "
                  + strVal(inputVar))
                  hpacLib.setVar(inputVar)

                  iform.open(":NUCLEAR:IMAGE.FSL")
                  iform.wait()
              ;   iform.close()

              endMethod
```

```
Object:       FirstPage.mainBox.viewButton
MethodName:   Uses
Source:       Uses    ObjectPal

              setVar(inputVar AnyType)

              endUses
```

Table J-18. Nuclear power reactor edit (N_ED) form source code (Continued).

```
Object:       FirstPage.mainBox.viewButton
MethodName:   Var
Source:       Var

              endVar
```

```
Object:       FirstPage.mainBox.viewButton
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  iForm   Form
                  j    String
              endVar

              if country=""
                   then
                       msgInfo("WARNING","No Image found")
                  else
                  inputVar = country
                  msgInfo("TESTING","Value of field is: " + strVal(inputVar))
                  hpacLib.setVar(inputVar)

                  iform.open(":NUCLEAR:IMAGE.FSL")
                  iform.wait()
              endIf

              endMethod
```

```
Object:       FirstPage.mainBox.#Box9.PreviousRecord
MethodName:   mouseEnter
Source:       method mouseEnter(var eventInfo MouseEvent)
                  doDefault
                  message("Move to Previous Record")
              endMethod
```

```
Object:       FirstPage.mainBox.#Box9.PreviousRecord
MethodName:   mouseExit
Source:       method mouseExit(var eventInfo MouseEvent)
                  doDefault
                  message("")
              endMethod
```

Table J-18. Nuclear power reactor edit (N_ED) form source code (Continued).

```
Object:       FirstPage.mainBox.#Box9.PreviousRecord
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  tc   TCursor
                  tbl  Table
                  scratch DynArray[]  AnyType
                  tblName     String
              endVar
              tblName = ":WORK:N_FAC_Q"

              if tc.open(tblName)  then

                  if RecNum = 1 then
                      msgStop("That's IT!","No more records")
                  else
                      tc.moveToRecNo(RecNum - 1)
                      RecNum = tc.recNo()
                      resync(tc)
                  endIf

              else
                  msgStop("Sorry", "Can't open " + tblName + " table.")
              endIf
              endMethod
```

```
Object:       FirstPage.mainBox.#Box9.FirstRecord
MethodName:   mouseEnter
Source:       method mouseEnter(var eventInfo MouseEvent)
                  doDefault
                  message("Move to First Record")
              endMethod
```

```
Object:       FirstPage.mainBox.#Box9.FirstRecord
MethodName:   mouseExit
Source:       method mouseExit(var eventInfo MouseEvent)
                  doDefault
                  message("")
              endMethod
```

```
Object:       FirstPage.mainBox.#Box9.FirstRecord
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  tc   TCursor
                  tbl  Table
```

Table J-18. Nuclear power reactor edit (N_ED) form source code (Continued).

```
        scratch DynArray[] AnyType
        tblName     String
        endVar
        tblName = ":WORK:N_FAC_Q"

        if tc.open(tblName) then

            if RecNum = 1 then
                msgStop("That's IT!", "No more records")
            else
                tc.home()
                RecNum = 1
                resync(tc)
            endIf

        else
            msgStop("Sorry", "Can't open " + tblName + " table.")
        endIf
        endMethod
```

```
Object:       FirstPage.mainBox.#Box9.PrevRecGrp
MethodName:   mouseEnter
Source:       method mouseEnter(var eventInfo MouseEvent)
                  doDefault
                  message("Move to Previous Record Group")
              endMethod
```

```
Object:       FirstPage.mainBox.#Box9.PrevRecGrp
MethodName:   mouseExit
Source:       method mouseExit(var eventInfo MouseEvent)
                  doDefault
                  message("")
              endMethod
```

```
Object:       FirstPage.mainBox.#Box9.PrevRecGrp
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  tc   TCursor
                  tbl  Table
                  scratch DynArray[] AnyType
                  tblName     String
                  grp LongInt
              endVar
              tblName = ":WORK:N_FAC_Q"
```

Table J-18. Nuclear power reactor edit (N_ED) form source code (Continued).

```
        if tc.open(tblName) then
            if tc.nRecords() <= 400 then
                grp = 20
            else
                grp = tc.nRecords() / 20
            endIf

            if RecNum = 1 then
                msgStop("That's IT!", "No more records")
            else
                tc.moveToRecNo(RecNum - grp)
                RecNum = tc.recNo()
                resync(tc)
            endIf
        else
            msgStop("Sorry", "Can't open " + tblName + " table.")
        endIf
        endMethod
```

```
Object:      FirstPage.mainBox.#Box9.LastRecord
MethodName:  mouseEnter
Source:      method mouseEnter(var eventInfo MouseEvent)
                 doDefault
                 message("Move to Last Record")
             endMethod
```

```
Object:      FirstPage.mainBox.#Box9.LastRecord
MethodName:  mouseExit
Source:      method mouseExit(var eventInfo MouseEvent)
                 doDefault
                 message("")
             endMethod
```

```
Object:      FirstPage.mainBox.#Box9.LastRecord
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             var
                 tc   TCursor
                 tbl  Table
                 scratch DynArray[] AnyType
                 tblName     String
             endVar
             tblName = ":WORK:N_FAC_Q"

             if tc.open(tblName) then
```

Table J-18. Nuclear power reactor edit (N_ED) form source code (Continued).

```
        if RecNum = tc.nRecords() then
            msgStop("That's IT!", "No more records")
        else
            tc.end()
            RecNum = tc.nRecords()
            resync(tc)
        endIf

    else
        msgStop("Sorry", "Can't open " + tblName + " table.")
    endIf
    endMethod
```

```
Object:       FirstPage.mainBox.#Box9.NxtRecGrp
MethodName:   mouseEnter
Source:       method mouseEnter(var eventInfo MouseEvent)
                  doDefault
                  message("Move to Next Record Group")
              endMethod
```

```
Object:       FirstPage.mainBox.#Box9.NxtRecGrp
MethodName:   mouseExit
Source:       method mouseExit(var eventInfo MouseEvent)
                  doDefault
                  message("")
              endMethod
```

```
Object:       FirstPage.mainBox.#Box9.NxtRecGrp
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  tc   TCursor
                  tbl  Table
                  scratch DynArray[] AnyType
                  tblName     String
                  grp LongInt
              endVar
              tblName = ":WORK:N_FAC_Q"

              if tc.open(tblName)  then

                  if tc.nRecords() <= 400 then
                      grp = 20
                  else
                      grp = tc.nRecords() / 20
                  endIf
```

Table J-18. Nuclear power reactor edit (N_ED) form source code (Continued).

```
        if RecNum = tc.nRecords() then
            msgStop("That's IT!", "No more records")
        else
            tc.moveToRecNo(RecNum + grp)
            RecNum = tc.recNo()
            resync(tc)
        endIf

    else
        msgStop("Sorry", "Can't open " + tblName + " table.")
    endIf
    endMethod
```

```
Object:       FirstPage.mainBox.#Box9.NextRecord
MethodName:   mouseEnter
Source:       method mouseEnter(var eventInfo MouseEvent)
                  doDefault
                  message("Move to Next Record")
              endMethod
```

```
Object:       FirstPage.mainBox.#Box9.NextRecord
MethodName:   mouseExit
Source:       method mouseExit(var eventInfo MouseEvent)
                  doDefault
                  message("")
              endMethod
```

```
Object:       FirstPage.mainBox.#Box9.NextRecord
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  tc   TCursor
                  tbl  Table
                  scratch DynArray[] AnyType
                  tblName     String
              endVar

              tblName = ":WORK:N_FAC_Q"

              if tc.open(tblName)  then

                  if RecNum = tc.nRecords() then
                      msgStop("That's IT!", "No more records")
                  else
                      tc.moveToRecNo(RecNum + 1)
                      RecNum = tc.recNo()
```

Table J-18. Nuclear power reactor edit (N_ED) form source code (Continued).

```
            resync(tc)
        endIf

    else
        msgStop("Sorry", "Can't open " + tblName + " table.")
    endIf
    endMethod
```

Object: FirstPage.mainBox.rtnButton
MethodName: pushButton
Source:

```
method pushButton(var eventInfo Event)
var
    f    Form
endVar

; return to the master form

close()
endMethod
```

Object: FirstPage.mainBox.editBox
MethodName: Var
Source:

```
Var

endVar
```

Object: FirstPage.mainBox.editBox
MethodName: mouseDown
Source:

```
method mouseDown(var eventInfo MouseEvent)

endMethod
```

Object: FirstPage.mainBox.editBox
MethodName: mouseClick
Source:

```
method mouseClick(var eventInfo MouseEvent)

endMethod
```

Table J-18. Nuclear power reactor edit (N_ED) form source code (Continued).

Object: FirstPage.mainBox.editBox.AddRecordButton
MethodName: depart
Source:
```
method depart(var eventInfo MoveEvent)

endMethod
```

Object: FirstPage.mainBox.editBox.AddRecordButton
MethodName: pushButton
Source:
```
method pushButton(var eventInfo Event)

msgInfo("NOTICE!","Function (ADD RECORD) not implemented at this time.")
endMethod
```

Object: FirstPage.mainBox.editBox.DeleteButton
MethodName: pushButton
Source:
```
method pushButton(var eventInfo Event)
var
    tcN_Fac, tcN_FacArc, tcEdit          TCursor
    tvEdit   TableView
    edForm      Form
endVar

if msgYesNoCancel("WARNING","Are you sure you want to delete this record?") =
"Yes" then
    tcN_Fac.attach(mainBox)
    setMouseShape(MouseWait)
;   msgInfo("DEBUG1","mainBox attached, \nFID = "+FID_No)
    if tcN_FacArc.open(":edit:N_FACIL.DB") then
        tcN_FacArc.edit()
        tcN_FacArc.insertRecord(tcN_Fac)
        doDefault
        if tcEdit.open(":edit:edit.db") then
            tcEdit.edit()
            if tcEdit.insertAfterRecord() then
                tcEdit.Date = today()
                tcEdit.Time = time()
                tcEdit.TableName = tcN_Fac.tableName()
                tcEdit.RecordNum = FID_No
                tcEdit.ActionTaken = "Deleted"
                doDefault

                if   edForm.open(":edit:edit.fsl") then
                    message("Adding comments")
                    edForm.wait()
                else
                    msgInfo("ERROR","Could not open EDIT.FSL")
                endIf
```

Table J-18. Nuclear power reactor edit (N_ED) form source code (Continued).

```
                else
                    msgStop("ERROR","Problem opening :EDIT:EDIT.DB")
                endIf
                msgInfo("DEBUG2","Date = "+ tcEdit.Date+
                        "\nTime = "+ string(time(tcEdit.Time)) +
                        "\nTable Name = "+tcEdit.TableName +
                        "\nRecord Number = "+tcEdit.RecordNum +
                        "\nAction Taken = "+tcEdit.ActionTaken)

                tcEdit.endEdit()
            endIf
            message("Record Archived")
            sound(50,250)
        ;look at archive table
        ;       tvEdit.open(":edit:N_FACIL.DB")
        ;       sleep(2000)
        ;       tvEdit.close()
        else
            msgStop("ERROR","Problem opening :edit:N_FACIL.DB")
        endIf
    else
        msgStop("NOTICE","You have canceled the DELETE function.")
    endIf

    setMouseShape(mouseArrow)
    ; msgInfo("NOTICE!","Function (DELETE RECORD) not
    ; implemented at this time.")
    endMethod
```

```
Object:       FirstPage.mainBox.N_FacData2.Design_Type
MethodName:   changeValue
Source:       method changeValue(var eventInfo ValueEvent)
              ;    msgInfo("DEBUG","Value of this field is:  "+self.value)
              endMethod
```

```
Object:       FirstPage.mainBox.titleBlock1.PageDownButton
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              moveToPage(2)
              endMethod
```

```
Object:       FirstPage.mainBox.LatLongBox.LAD
MethodName:   arrive
Source:       method arrive(var eventInfo MoveEvent)

              {var
```

Table J-18. Nuclear power reactor edit (N_ED) form source code (Continued).

```
    table1, table2    TCursor
    str1, str2    String
endVar

table1.open(":nuclear:n_locat.db")
action(DataBeginEdit)
msgInfo("DEBUG","arrived at "+ active.FieldName)

self.view()}
endMethod
```

Object: FirstPage.mainBox.LatLongBox.LAD
MethodName: mouseClick
Source:

```
method mouseClick(var eventInfo MouseEvent)
{var
    dyn    DynArray[] String
endVar

self.enumUIObjectProperties(dyn)
dyn.view("Properties of this field:")}
endMethod
```

Table J-19. Nuclear research reactor edit (NRE_ED) form source code.

```
Object:       #FormData1
MethodName:   Var
Source:       Var
                  RecNum          Number
                  tcChange        TCursor
                  sVal1, sVal2    String
                  nVal1, nVal2    Number
                  aVal1, aVal2    AnyType
                  startTime    DateTime
              endVar
```

```
Object:       #FormData1
MethodName:   Const
Source:       Const
              DIR = ":NUCLEAR:"
              endConst
```

```
Object:       #FormData1
MethodName:   open
Source:       method open(var eventInfo Event)
              if eventInfo.isPreFilter()
                  then
                      ; This code executes for each object on the form.

                  else
                      ; This code executes only for the form.
                  doDefault
                  maximize()
              endIf
              endMethod
```

```
Object:       #FormData1
MethodName:   arrive
Source:       method arrive(var eventInfo MoveEvent)

              if eventInfo.isPreFilter() then
                  ;// This code executes for each object on the form:

              else
                  ;// This code executes only for the form:
                  startTime = today()
              endIf
              endMethod
```

Table J-19. Nuclear research reactor edit (NRE_ED) form source code (Continued).

```
Object:       #FormData1
MethodName:   depart
Source:       method depart(var eventInfo MoveEvent)
              var
                  tcQ, tc          TCursor
                  table, char      String
                  ary DynArray[] AnyType
              endVar
                  if eventInfo.isPreFilter() then
                      ;// This code executes for each object on the form:
                      active.endEdit()
                  else
                      ;// This code executes only for the form:

                  if tcChange.open(":edit:edit.db") then
                      scan tcChange for tcChange.Time > startTime:
                          table = tcChange.TableName
                          char = table.subStr(table.size()-3,1)
                          if char = "Q" then
                              if table.subStr(1,1) <> ":" then
                                  table = tcChange.Directory + tcChange.TableName
                              endIf
                              if tcQ.open(table) then
                                  tc.open(":nuclear:nre_addr.db")
                                  scan tcQ for tcChange.RecordNum = tcQ."FID No" :
                                      scan tc for tcChange.RecordNum = tc."FID No" :
                                              tc.edit()
                                              tc.copyRecord(tcQ)
                                              tc.endEdit()
                                      endScan
                                  endScan
                              else
                                  msgInfo("WARNING","Could not open " + table)
                              endIf
                          else
                              loop            ; if this table isn't a temporary
                                              ; table, go to next record
                          endIf
                      endScan
                      msgInfo("NOTICE","Last record")
                      else
                   msgStop("WARNING","Could not open EDIT.DB")
                   endIf
               endIf
               endMethod
```

Table J-19. Nuclear research reactor edit (NRE_ED) form source code (Continued).

```
Object:       #FormData1
MethodName:   mouseDouble
Source:       method mouseDouble(var eventInfo MouseEvent)

                  if eventInfo.isPreFilter() then
                      ;// This code executes for each object on the form:
                      active.edit()
                  else
                      ;// This code executes only for the form:

                  endIf

              endMethod
```

```
Object:       #FormData1
MethodName:   changeValue
Source:       method changeValue(var eventInfo ValueEvent)

              var
                  fs   FileSystem
                  tc   TCursor
                  tblName    String
              endVar

                  if eventInfo.isPreFilter() then
                      ;// This code executes for each object on the form:
                      doDefault                ;force the new data to post
                  ;   msgInfo("DEBUG 2", "Value of this field is:  "
                  ; + active.value)
                      if tcChange.open(":edit:edit.db") then
                          message("Editing EDIT.DB")
                          sleep(500)

                      tcChange.edit()
                          tcChange.end()
                          tcChange.insertAfterRecord()
                          tcChange.Date = today()
                          tcChange.Time = time()
                          tcChange.Directory = fs.fullName()
                          tcChange.FieldVal = strVal(active.value)
                          tcChange.FieldName = active.fieldName
                          tcChange.FieldType = active.fieldType
                          tcChange.TableName = active.self.TableName
              ;           msgInfo("TABLE NAME",active.self.tableName)

                          tc.open(tcChange.TableName)
                          tc.attach(active)
                          tc.fieldValue(1,aVal1)
```

Table J-19. Nuclear research reactor edit (NRE_ED) form source code (Continued).

```
;               msgInfo("DEBUG","aVal1 = "+ strVal(aVal1))

                tcChange.RecordNum = aVal1
;               tcChange.ActionTaken = "Changed"

                sVal1 = "Enter your NAME and Reason for the change."
                sVal1.view()
                tcChange.Comments = sVal1

                tcChange.endEdit()
                message ("Done")

                sound(1320,50)
            else
                msgInfo("WARNING","We have a problem here, could not write to
                EDIT.DB")

            endIf
        else
            ;// This code executes only for the form:

        endIf

    endMethod
```

```
Object:       #Page4.rtnButton1
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  f    Form
              endVar

              ; return to the master form

              close()
              endMethod
```

```
Object:       #Page4.titleBox2.#Button179
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              moveToPage(1)
              endMethod
```

Table J-19. Nuclear research reactor edit (NRE_ED) form source code (Continued).

Object: #Page2.#Box443.location3.#Field114
MethodName: calcField
Source: iif([NRE_ADDR.LAD]<>"","°","")

Object: #Page2.#Box443.location3.#Field158
MethodName: calcField
Source: iif([NRE_ADDR.LOD]<>"","°","")

Object: #Page2.#Box443.location3.#Field160
MethodName: calcField
Source: iif([NRE_ADDR.LOM]<>"",",","")

Object: #Page2.#Box443.location3.#Field161
MethodName: calcField
Source: iif([NRE_ADDR.LOM]<>"","'","")

Object: #Page2.#Box443.location3.#Field163
MethodName: calcField
Source: iif([NRE_ADDR.LOS]<>"",",","")

Object: #Page2.#Box443.location3.#Field164
MethodName: calcField
Source: iif([NRE_ADDR.LOS]<>"","'","")

Object: #Page2.#Box443.location3.#Field166
MethodName: calcField
Source: iif([NRE_ADDR.LAS]<>"","'","")

Object: #Page2.#Box443.location3.#Field119
MethodName: calcField
Source: iif([NRE_ADDR.LAS]<>"",",","")

Object: #Page2.#Box443.location3.#Field117
MethodName: calcField
Source: iif([NRE_ADDR.LAM]<>"","'","")

Table J-19. Nuclear research reactor edit (NRE_ED) form source code (Continued).

```
Object:      #Page2.#Box443.location3.#Field116
MethodName:  calcField
Source:      iif([NRE_ADDR.LAM]<>"",",","")
```

```
Object:      #Page2.rtnButton
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             var
                 f    Form
             endVar

             ; return to the master form

             close()
             endMethod
```

```
Object:      #Page2.titleBox.PageDownButton
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             moveToPage(2)
             endMethod
```

Table J-20. Nuclear fuel cycle edit (NFC_ED) form source code.

```
Object:       FUEL_CYCLE
MethodName:   Var
Source:       Var
                  RecNum     LongInt
                  rec String
                  tcChange   TCursor
                  sVal1, sVal2    String
                  nVal1, nVal2    Number
                  aVal1, aVal2    AnyType
              endVar
```

```
Object:       FUEL_CYCLE
MethodName:   arrive
Source:       method arrive(var eventInfo MoveEvent)
                  if eventInfo.isPreFilter()
                      then
                          ; This code executes for each object on the form.

                      else
                          ; This code executes only for the form.
                      doDefault
                      RecNum = 1
                  endIf
              endMethod
```

```
Object:       FUEL_CYCLE
MethodName:   depart
Source:       method depart(var eventInfo MoveEvent)

                  if eventInfo.isPreFilter() then
                      ;// This code executes for each object on the form:
                      active.endEdit()
                  else
                      ;// This code executes only for the form:

                  endIf

              endMethod
```

```
Object:       FUEL_CYCLE
MethodName:   mouseDouble
Source:       method mouseDouble(var eventInfo MouseEvent)

                  if eventInfo.isPreFilter() then
                      ;// This code executes for each object on the form:
```

Table J-20. Nuclear fuel cycle edit (NFC_ED) form source code (Continued).

```
            active.edit()
        else
            ;// This code executes only for the form:

        endIf

    endMethod
```

```
Object:       FUEL_CYCLE
MethodName:   changeValue
Source:       method changeValue(var eventInfo ValueEvent)

    var
        fs   FileSystem
        tc   TCursor
        tblName    String
    endVar

        if eventInfo.isPreFilter() then
            ;// This code executes for each object on the form:
            doDefault                ;force the new data to post
            if  tcChange.open(":edit:edit.db") then
                message("Editing EDIT.DB")
                sleep(500)

                tcChange.edit()
                tcChange.end()
                tcChange.insertAfterRecord()

                tcChange.Date = today()
                tcChange.Time = time()
                tcChange.Directory = fs.fullName()
                tcChange.FieldVal = strVal(active.value)
                tcChange.FieldName = active.fieldName
                tcChange.FieldType = active.fieldType
                tcChange.TableName = active.self.TableName

                tc.open(tcChange.TableName)
                tc.attach(active)
                tc.fieldValue(1,aVal1)

                tcChange.RecordNum = aVal1

                sVal1 = "Enter your NAME and Reason for the change."
                sVal1.view()
                tcChange.Comments = sVal1

                tcChange.endEdit()
```

Table J-20. Nuclear fuel cycle edit (NFC_ED) form source code (Continued).

```
            message ("Done")

            sound(1320,50)
        else
            msgInfo("WARNING","We have a problem here, could not write to
            EDIT.DB")

        endIf
    else
        ;// This code executes only for the form:

    endIf

endMethod
```

```
Object:      #Page2.rtnButton
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             var
                 f   Form
             endVar

             ; return to the master form

             close()
             endMethod
```

```
Object:      #Page2.#Box108.LastRecord
MethodName:  mouseEnter
Source:      method mouseEnter(var eventInfo MouseEvent)
                 doDefault
                 message("Move to Last Record")
             endMethod
```

```
Object:      #Page2.#Box108.LastRecord
MethodName:  mouseExit
Source:      method mouseExit(var eventInfo MouseEvent)
                 doDefault
                 message("")
             endMethod
```

Table J-20. Nuclear fuel cycle edit (NFC_ED) form source code (Continued).

```
Object:       #Page2.#Box108.LastRecord
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  tc   TCursor
                  tbl  Table
                  scratch DynArray[]  AnyType
                  tblName     String
              endVar
              tblName = "N_FC_FAC"

              if tc.open(tblName)  then

                  if RecNum = tc.nRecords() then
                      msgStop("That's IT!", "No more records")
                  else
                      tc.end()
                      RecNum = tc.nRecords()
                      resync(tc)
                  endIf

              else
                  msgStop("Sorry", "Can't open " + tblName + " table.")
              endIf
              endMethod
```

```
Object:       #Page2.#Box108.PreviousRecord
MethodName:   mouseEnter
Source:       method mouseEnter(var eventInfo MouseEvent)
                  doDefault
                  message("Move to Previous Record")
              endMethod
```

```
Object:       #Page2.#Box108.PreviousRecord
MethodName:   mouseExit
Source:       method mouseExit(var eventInfo MouseEvent)
                  doDefault
                  message("")
              endMethod
```

```
Object:       #Page2.#Box108.PreviousRecord
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  tc   TCursor
                  tbl  Table
```

Table J-20. Nuclear fuel cycle edit (NFC_ED) form source code (Continued).

```
    scratch DynArray[] AnyType
    tblName    String
endVar
tblName = "N_FC_FAC"

if tc.open(tblName) then

    if RecNum = 1 then
        msgStop("That's IT!", "No more records")
    else
        tc.moveToRecNo(RecNum - 1)
        RecNum = tc.recNo()
        resync(tc)
    endIf

else
    msgStop("Sorry", "Can't open " + tblName + " table.")
endIf
endMethod
```

```
Object:      #Page2.#Box108.FirstRecord
MethodName:  mouseEnter
Source:      method mouseEnter(var eventInfo MouseEvent)
                 doDefault
                 message("Move to First Record")
             endMethod
```

```
Object:      #Page2.#Box108.FirstRecord
MethodName:  mouseExit
Source:      method mouseExit(var eventInfo MouseEvent)
                 doDefault
                 message("")
             endMethod
```

```
Object:      #Page2.#Box108.FirstRecord
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             var
                 tc   TCursor
                 tbl  Table
                 scratch DynArray[] AnyType
                 tblName    String
             endVar
             tblName = "N_FC_FAC"
```

Table J-20. Nuclear fuel cycle edit (NFC_ED) form source code (Continued).

```
        if tc.open(tblName) then

            if RecNum = 1 then
                msgStop("That's IT!", "No more records")
            else
                tc.home()
                RecNum = 1
                resync(tc)
            endIf

        else
            msgStop("Sorry", "Can't open " + tblName + " table.")
        endIf
        endMethod
```

```
Object:       #Page2.#Box108.PrevRecGrp
MethodName:   mouseEnter
Source:       method mouseEnter(var eventInfo MouseEvent)
                  doDefault
                  message("Move to Previous Record Group")
              endMethod
```

```
Object:       #Page2.#Box108.PrevRecGrp
MethodName:   mouseExit
Source:       method mouseExit(var eventInfo MouseEvent)
                  doDefault
                  message("")
              endMethod
```

```
Object:       #Page2.#Box108.PrevRecGrp
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  tc   TCursor
                  tbl  Table
                  scratch DynArray[]  AnyType
                  tblName     String
                  grp LongInt
              endVar
              tblName = "N_FC_FAC"

              if tc.open(tblName) then

                  if tc.nRecords() <= 400 then
                      grp = 20
                  else
```

Table J-20. Nuclear fuel cycle edit (NFC_ED) form source code (Continued).

```
            grp = tc.nRecords() / 20
        endIf

        if RecNum = 1 then
            msgStop("That's IT!", "No more records")
        else
            tc.moveToRecNo(RecNum - grp)
            RecNum = tc.recNo()
            resync(tc)
        endIf

    else
        msgStop("Sorry", "Can't open " + tblName + " table.")
    endIf
    endMethod
```

```
Object:      #Page2.#Box108.NxtRecGrp
MethodName:  mouseEnter
Source:      method mouseEnter(var eventInfo MouseEvent)
                 doDefault
                 message("Move to Next Record Group")
             endMethod
```

```
Object:      #Page2.#Box108.NxtRecGrp
MethodName:  mouseExit
Source:      method mouseExit(var eventInfo MouseEvent)
                 doDefault
                 message("")
             endMethod
```

```
Object:      #Page2.#Box108.NxtRecGrp
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             var
                 tc   TCursor
                 tbl  Table
                 scratch DynArray[]  AnyType
                 tblName     String
                 grp LongInt
             endVar
             tblName = "N_FC_FAC"

             if tc.open(tblName)  then

                 if tc.nRecords() <= 400 then
                     grp = 20
```

Table J-20. Nuclear fuel cycle edit (NFC_ED) form source code (Continued).

```
        else
            grp = tc.nRecords() / 20
        endIf

        if RecNum = tc.nRecords() then
            msgStop("That's IT!", "No more records")
        else
            tc.moveToRecNo(RecNum + grp)
            RecNum = tc.recNo()
            resync(tc)
        endIf

    else
        msgStop("Sorry", "Can't open " + tblName + " table.")
    endIf
    endMethod
```

```
Object:      #Page2.#Box108.NextRecord
MethodName:  mouseEnter
Source:      method mouseEnter(var eventInfo MouseEvent)
                 doDefault
                 message("Move to Next Record")
             endMethod
```

```
Object:      #Page2.#Box108.NextRecord
MethodName:  mouseExit
Source:      method mouseExit(var eventInfo MouseEvent)
                 doDefault
                 message("")
             endMethod
```

```
Object:      #Page2.#Box108.NextRecord
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             var
                 tc   TCursor
                 tbl  Table
                 scratch DynArray[]  AnyType
                 tblName     String
             endVar
             tblName = "N_FC_FAC"

             if tc.open(tblName)  then

                 if RecNum = tc.nRecords() then
                     msgStop("That's IT!", "No more records")
```

Table J-20. Nuclear fuel cycle edit (NFC_ED) form source code (Continued).

```
        else
            tc.moveToRecNo(RecNum + 1)
            RecNum = tc.recNo()
            resync(tc)
        endIf

    else
        msgStop("Sorry", "Can't open " + tblName + " table.")
    endIf
    endMethod
```

Object: #Page2.#Box35.OperatorAddress
MethodName: mouseEnter
Source:

```
method mouseEnter(var eventInfo MouseEvent)
    doDefault
    message("Click for details.")
endMethod
```

Object: #Page2.#Box35.OperatorAddress
MethodName: mouseExit
Source:

```
method mouseExit(var eventInfo MouseEvent)
    doDefault
    message("")
endMethod
```

Object: #Page2.#Box35.OperatorAddress
MethodName: mouseRightDown
Source:

```
method mouseRightDown(var eventInfo MouseEvent)
var
    tc   TCursor
endVar

tc.open("N_FC_FAC.DB")
tc.moveToRecNo(RecNum)

msgInfo("OPERATOR ADDRESS",tc.OperatorAddress)
endMethod
```

Object: #Page2.#Box35.OperatorAddress
MethodName: mouseClick
Source:

```
method mouseClick(var eventInfo MouseEvent)
endMethod
```

Table J-20. Nuclear fuel cycle edit (NFC_ED) form source code (Continued).

```
Object:       #Page2.#Box34.OwnerAddress
MethodName:   mouseEnter
Source:       method mouseEnter(var eventInfo MouseEvent)
                  doDefault
                  message("Click for details.")
              endMethod
```

```
Object:       #Page2.#Box34.OwnerAddress
MethodName:   mouseExit
Source:       method mouseExit(var eventInfo MouseEvent)
                  doDefault
                  message("")
              endMethod
```

```
Object:       #Page2.#Box34.OwnerAddress
MethodName:   mouseRightDown
Source:       method mouseRightDown(var eventInfo MouseEvent)
              var
                  tc   TCursor
              endVar

              tc.open("N_FC_FAC.DB")
              tc.moveToRecNo(RecNum)

              msgInfo("OWNER ADDRESS",tc.OwnerAddress)

              endMethod
```

```
Object:       #Page2.#Box34.OwnerAddress
MethodName:   mouseClick
Source:       method mouseClick(var eventInfo MouseEvent)

              endMethod
```

```
Object:       #Page2.#Box32.FacilityType
MethodName:   mouseEnter
Source:       method mouseEnter(var eventInfo MouseEvent)
                  doDefault
                  message("Click on field to expand.")
              endMethod
```

Table J-20. Nuclear fuel cycle edit (NFC_ED) form source code (Continued).

```
Object:       #Page2.#Box32.FacilityType
MethodName:   mouseExit
Source:       method mouseExit(var eventInfo MouseEvent)
                  doDefault
                  message("")
              endMethod
```

```
Object:       #Page2.#Box32.FacilityType
MethodName:   mouseRightUp
Source:       method mouseRightUp(var eventInfo MouseEvent)
              var
                  tc   TCursor
              endVar

              tc.open("N_FC_FAC.DB")
              tc.moveToRecNo(RecNum)

              msgInfo("FACILITY TYPE",tc.FacilityType)
              endMethod
```

```
Object:       #Page2.#Box32.FacilityType
MethodName:   mouseClick
Source:       method mouseClick(var eventInfo MouseEvent)

              endMethod
```

```
Object:       #Page2.#Box8.LongitudeMin
MethodName:   calcField
Source:       IIF([NFC_FAC.LongitudeMin] = "","",", "
              +[NFC_FAC.LongitudeMin]+"' ")
```

```
Object:       #Page2.#Box8.LongitudeDeg
MethodName:   calcField
Source:       IIF([NFC_FAC.LongitudeDeg]="","",[NFC_FAC.LongitudeDeg] + "°")
```

```
Object:       #Page2.#Box8.LatitudeMin
MethodName:   calcField
Source:       IIF([NFC_FAC.LatitudeMin] = "","",", +
              [NFC_FAC.LatitudeMin]+"' ")
```

Table J-20. Nuclear fuel cycle edit (NFC_ED) form source code (Continued).

Object:	#Page2.#Box8.LatitudeDeg
MethodName:	calcField
Source:	IIF([NFC_FAC.LatitudeDeg]="","",[NFC_FAC.LatitudeDeg] + "o")

Table J-21. Check location & ID (CHEK_LID) form source code.

```
Object:       #FormData1
MethodName:   arrive
Source:       method arrive(var eventInfo MoveEvent)

              if eventInfo.isPreFilter()
                  then
                      ; This code executes for each object on the form.

                  else
                      ; This code executes only for the form.
                  doDefault
                  maximize()

              endIf
              endMethod
```

```
Object:       #Page2.#Box10.rtnButton
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  f   Form
              endVar

              ; return to the master form

              close()
              endMethod
```

Table J-22. Chemical facilities (C_FAC) form source code.

```
Object:       C_FAC
MethodName:   Var
Source:       Var
                  tc   TCursor
                  fidNo   String
              endVar
```

```
Object:       C_FAC
MethodName:   open
Source:       method open(var eventInfo Event)
              if eventInfo.isPreFilter()
                  then
                      ; This code executes for each object on the form.

                  else
                      ; This code executes only for the form.
                  doDefault
                  maximize()
              endIf
              endMethod
```

```
Object:       #Form1_Page1.HEADER2.#Button128
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
                  doDefault
                  moveToPage(1)
              endMethod
```

```
Object:       #Form1_Page1.HEADER2.rtnButton
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  f   Form
              endVar

              ; return to the master form
              close()
              endMethod
```

Table J-22. Chemical facilities (C_FAC) form source code (Continued).

```
Object:      #Page2.#Box94.#Box113.latLongBox.EW
MethodName:  calcField
Source:      IIF([C_LOCATE.EW]="","","  "+[C_LOCATE.EW])
```

```
Object:      #Page2.#Box94.#Box113.latLongBox.NS
MethodName:  calcField
Source:      IIF([C_LOCATE.NS]="","","  "+[C_LOCATE.NS])
```

```
Object:      #Page2.#Box94.#Box113.latLongBox.Box1.LOS
MethodName:  calcField
Source:      iif([C_LOCATE.LongS] = "","N/A",",  "+[C_LOCATE.LongS] +"" ")
```

```
Object:      #Page2.#Box94.#Box113.latLongBox.Box1.LOM
MethodName:  calcField
Source:      iif([C_LOCATE.LongM] = "","",",  "+[C_LOCATE.LongM]+"'  ")
```

```
Object:      #Page2.#Box94.#Box113.latLongBox.Box1.LOD
MethodName:  calcField
Source:      iif([C_LOCATE.LongD] = "","N/A",[C_LOCATE.LongD]+"º  ")
```

```
Object:      #Page2.#Box94.#Box113.latLongBox.#Box63.LAS
MethodName:  calcField
Source:      iif([C_LOCATE.LatS] = "","",",  "+[C_LOCATE.LatS]+"""")
```

```
Object:      #Page2.#Box94.#Box113.latLongBox.#Box63.LAM
MethodName:  calcField
Source:      iif([C_LOCATE.LatM] = "","",",  "+[C_LOCATE.LatM]+"'  ")
```

```
Object:      #Page2.#Box94.#Box113.latLongBox.#Box63.LAD
MethodName:  calcField
Source:      iif([C_LOCATE.LatD] = "","N/A",[C_LOCATE.LatD]+"º  ")
```

```
Object:      #Page2.#Box94.#Box113.addressBox.Postal_Code___Zip_code
MethodName:  calcField
Source:      "    "+[C_LOCATE.Postal Code / Zip code]
```

Table J-22. Chemical facilities (C_FAC) form source code (Continued).

```
Object:      #Page2.#Box94.#Box113.addressBox.State_Province
MethodName:  calcField
Source:      iif([C_LOCATE.State/Province]="","",",  "+ [C_LOCATE.State/Province])
```

```
Object:      #Page2.#Box94.titleBox.rtnButton
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             var
                 f    Form
             endVar

             ; return to the master form

             close()
             endMethod
```

```
Object:      #Page2.#Box94.titleBox.goToPage2
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             doDefault
             moveToPage(2)
             endMethod
```

Table J-23. Chemical facility query (C_F_QRY) form source code.

```
Object:         C_F_QRY
MethodName:     arrive
Source:         method arrive(var eventInfo MoveEvent)
                var
                    chemQ  Query
                    chemName  String
                    chemForm  Form
                endVar

                    if eventInfo.isPreFilter() then
                        ;// This code executes for each object on the form:

                    else
                        ;// This code executes only for the form:

                chemName.view("Enter a chemical to search for.")

                chemQ = Query
                ANSWER: :PRIV:ANSWER.DB

                :CHEM:C_NAMES.DB | Chemical Name | Synonym    |
                    | Check _join1! | Check ~chemName   |

                :CHEM:C_MIX.DB | CID          |
                    | _join1,_join2 |

                :CHEM:C_PRDC.DB | FID No.  | CID No.  |
                    | _join3  | _join2  |

                :CHEM:C_FACALL.DB | FID No    | FACILITY_Name      |
                    | Check _join3, _join4 | Check              |

                :CHEM:C_LOCATE.DB | FID No    | City  |
                    | State/Province | COUNTRY     |
                    | _join4      | Check          | Check     | Check |

                EndQuery

                if chemQ.executeQBE()
                    then
                        beep()
                        sleep(50)
                        beep()
                        sleep(50)
                        beep()
                        sleep(50)
```

Table J-23. Chemical facility query (C_F_QRY) form source code (Continued).

```
            hide()          ;hide the current form

            ; attach the CHEM_FAC form and open it,
            ; Chemical facilities
            chemForm.open(":CHEM:CHEM_FAC.FSL",
            WinStyleDefault,1440*.125,1440*.125,1440*8,1440*6)
            ;disableDefault

            chemForm.bringToTop()
            chemForm.wait()
            show()   ; bring the current form back to the screen

        else
            sound(110,50)
            sound(120,50)
            sound(130,50)
            sound(140,50)
            sound(150,50)
            msgInfo("Problem","Query failed!")
        endIf

    endIf

    endMethod
```

```
Object:       #Page2
MethodName:   arrive
Source:       method arrive(var eventInfo MoveEvent)

              endMethod
```

```
Object:       #Page2.closeButton
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
                  close()
              endMethod
```

```
Object:       #Page2.resultsButton
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  chemForm  Form
              endVar

              hide()
```

Table J-23. Chemical facility query (C_F_QRY) form source code (Continued).

```
; attach the CHEM_FAC form and open it,
; Chemical facilities
chemForm.open(":CHEM:CHEM_FAC.FSL",
WinStyleDefault,1440*.25,1440*.25,1440*7,1440*5)
;disableDefault

chemForm.bringToTop()
chemForm.wait()
show()

endMethod
```

```
Object:      #Page2.queryButton
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             var
                 chemQ  Query
                 chemName  String
                 chemForm  Form
             endVar

             chemName.view("Enter a chemical to search for.")

             chemQ = Query
             ANSWER: :PRIV:ANSWER.DB

             :CHEM:C_NAMES.DB | Chemical Name | Synonym   |
                 | Check _join1! | Check ~chemName   |

             :CHEM:C_MIX.DB | CID     |
                 | _join1, _join2 |

             :CHEM:C_PRDC.DB | FID No. | CID No. |
                 | _join3  | _join2  |

             :CHEM:C_FACALL.DB | FID No          | FACILITY_Name |
                 | Check _join3, _join4 | Check       |

             :CHEM:C_LOCATE.DB | FID No        | City     |
                 | State/Province | COUNTRY        |
                 | _join4      | Check | Check | Check          |

             EndQuery
```

Table J-23. Chemical facility query (C_F_QRY) form source code (Continued).

```
if chemQ.executeQBE()
    then
        beep()
        sleep(50)
        beep()
        sleep(50)
        beep()
        sleep(50)

        hide()

        ; attach the CHEM_FAC form and open it,
        ; Chemical facilities
        chemForm.open(":CHEM:CHEM_FAC.FSL",
        WinStyleDefault,1440*.25,1440*.25,1440*8,1440*6)
        ;disableDefault

        chemForm.bringToTop()
        chemForm.wait()
        show()

    else
        sound(110,50)
        sound(120,50)
        sound(130,50)
        sound(140,50)
        sound(150,50)
        msgInfo("Problem","Query failed!")

endIf
endMethod
```

Table J-24. Chemical facility linkage (C_FACILITIES) form source code.

```
Object:       Method
MethodName:   CHEMICAL_FACILITIES|arrive
Source:       method arrive(var eventInfo MoveEvent)
                  if eventInfo.isPreFilter() then
                      ;// This code executes for each object on the form:
                  else
                      ;// This code executes only for the form:
                      bringToTop()
                  endIf
              endMethod
```

```
Object:       CHEMICAL_FACILITIES
MethodName:   action
Source:       method action(var eventInfo ActionEvent)

                  if eventInfo.isPreFilter() then
                      ;// This code executes for each object on the form:
                      ;msgInfo("NOTICE","This is the preFilter side of the ;action method.")
                  else
                      ;// This code executes only for the form:
                      ;doDefault

                  endIf

              endMethod
```

```
Object:       #Page2.closeButton
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              {var
                  prevForm    Form
              endVar

                  prevForm.open(":CHEM:C_F_QRY")
                  prevForm.show()
                  prevForm.bringToTop()}
                  close()
              endMethod
```

```
Object:       #Page2.queryButton
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
```

Table J-24. Chemical facility linkage (C_FACILITIES) form source code (Continued).

```
    chemQ Query
    chemName String
endVar

;msgInfo("NOTICE","About to enter View dialog box")
    chemName.view("Enter a chemical to search for.")

    chemQ = Query
    ANSWER: :PRIV:ANSWER.DB

    :CHEM:C_NAMES.DB | Chemical Name | Synonym      |
        | Check _join1! | Check ~chemName  |

    :CHEM:C_MIX.DB | CID        |
        | _join1, _join2 |

    :CHEM:C_PRDC_X.DB | FID No. | CID No. |
        | _join3  | _join2  |

    :CHEM:C_FACALL.DB | FID No      | FACILITY_Name |
        | Check _join3, _join4 | Check      |

    :CHEM:C_LOCATE.DB | FID No                    | City       |
        |State/Province  | COUNTRY            |
        | _join4          | Check          | Check          | Check     |

    EndQuery

    if chemQ.executeQBE()
        then
            beep()
            sleep(75)
            beep()
            sleep(75)
            beep()
            sleep(75)
            ;msgInfo("Success","Query worked")
        else
            sound(150,50)
            sound(140,50)
            sound(130,50)
            sound(120,50)
            sound(110,50)
            msgInfo("Problem","Query failed!")
    endIf
endMethod
```

Table J-25. Chemicals produced (C_PRD) form source code.

```
Object:         #Page2.rtnButton
MethodName:     pushButton
                Source: method pushButton(var eventInfo Event)
                var
                    f    Form
                endVar

                ; return to the master form

                close()
                endMethod
```

Table J-26. BIO form source code.

```
Object:      p11.Box11.#Button719
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(8)
             endMethod
```

```
Object:      p11.Box11.#Button717
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(9)
             endMethod
```

```
Object:      p11.Box11.#Button715
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(7)
             endMethod
```

```
Object:      p11.Box11.#Button713
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(10)
             endMethod
```

```
Object:      p11.Box11.#Button711
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(11)
             endMethod
```

```
Object:      p11.Box11.#Button707
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(6)
             endMethod
```

```
Object:      p11.Box11.#Button565
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 close()
             endMethod
```

Table J-26. BIO form source code (Continued).

```
Object:      p11.Box11.#Button563
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(5)
             endMethod
```

```
Object:      p11.Box11.#Button561
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(4)
             endMethod
```

```
Object:      p11.Box11.#Button559
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(1)
             endMethod
```

```
Object:      p11.Box11.#Button553
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(3)
             endMethod
```

```
Object:      p11.Box11.#Button551
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(2)
             endMethod
```

```
Object:      p10.Box10.#Button705
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(8)
             endMethod
```

```
Object:      p10.Box10.#Button703
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(9)
             endMethod
```

Table J-26. BIO form source code (Continued).

```
Object:      p10.Box10.#Button701
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(7)
             endMethod
```

```
Object:      p10.Box10.#Button699
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(10)
             endMethod
```

```
Object:      p10.Box10.#Button697
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(11)
             endMethod
```

```
Object:      p10.Box10.#Button693
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(6)
             endMethod
```

```
Object:      p10.Box10.#Button548
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 close()
             endMethod
```

```
Object:      p10.Box10.#Button546
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(5)
             endMethod
```

```
Object:      p10.Box10.#Button544
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(4)
             endMethod
```

Table J-26. BIO form source code (Continued).

```
Object:      p10.Box10.#Button542
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(1)
             endMethod
```

```
Object:      p10.Box10.#Button536
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(3)
             endMethod
```

```
Object:      p10.Box10.#Button534
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(2)
             endMethod
```

```
Object:      p9.Box9.#Button679
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(6)
             endMethod
```

```
Object:      p9.Box9.#Button691
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(8)
             endMethod
```

```
Object:      p9.Box9.#Button689
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             moveToPage(9)
             endMethod
```

```
Object:      p9.Box9.#Button687
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(7)
             endMethod
```

Table J-26. BIO form source code (Continued).

```
Object:      p9.Box9.#Button685
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(10)
             endMethod
```

```
Object:      p9.Box9.#Button683
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(11)
             endMethod
```

```
Object:      p9.Box9.#Button531
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 close()
```

```
Object:      p9.Box9.#Button529
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(5)
             endMethod
```

```
Object:      p9.Box9.#Button527
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(4)
             endMethod
```

```
Object:      p9.Box9.#Button525
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(1)
             endMethod
```

```
Object:      p9.Box9.#Button519
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(3)
             endMethod
```

Table J-26. BIO form source code (Continued).

```
Object:      p9.Box9.#Button517
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(2)
             endMethod
```

```
Object:      p8.Box8.#Button677
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(8)
             endMethod
```

```
Object:      p8.Box8.#Button675
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(9)
             endMethod
```

```
Object:      p8.Box8.#Button673
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(7)
             endMethod
```

```
Object:      p8.Box8.#Button671
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(10)
             endMethod
```

```
Object:      p8.Box8.#Button669
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(11)
             endMethod
```

```
Object:      p8.Box8.#Button665
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(6)
             endMethod
```

Table J-26. BIO form source code (Continued).

```
Object:      p8.Box8.#Button514
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 close()
             endMethod
```

```
Object:      p8.Box8.#Button512
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             moveToPage(5)
             endMethod
```

```
Object:      p8.Box8.#Button510
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(4)
             endMethod
```

```
Object:      p8.Box8.#Button508
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(1)
             endMethod
```

```
Object:      p8.Box8.#Button502
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(3)
             endMethod
```

```
Object:      p8.Box8.#Button500
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(2)
             endMethod
```

```
Object:      p7.Box7.#Button497
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 close()
             endMethod
```

Table J-26. BIO form source code (Continued).

```
Object:      p7.Box7.#Button663
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(8)
             endMethod
```

```
Object:      p7.Box7.#Button661
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(9)
             endMethod
```

```
Object:      p7.Box7.#Button659
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(7)
             endMethod
```

```
Object:      p7.Box7.#Button657
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(10)
endMethod
```

```
Object:      p7.Box7.#Button655
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(11)
             endMethod
```

```
Object:      p7.Box7.#Button567
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(6)
             endMethod
```

```
Object:      p7.Box7.#Button495
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(5)
             endMethod
```

Table J-26. BIO form source code (Continued).

```
Object:      p7.Box7.#Button493
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(4)
             endMethod
```

```
Object:      p7.Box7.#Button491
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(1)
             endMethod
```

```
Object:      p7.Box7.#Button485
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(3)
             endMethod
```

```
Object:      p7.Box7.#Button483
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(2)
             endMethod
```

```
Object:      p6.Box6.#Button480
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 close()
             endMethod
```

```
Object:      p6.Box6.#Button651
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(8)
             endMethod
```

```
Object:      p6.Box6.#Button649
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(9)
             endMethod
```

Table J-26. BIO form source code (Continued).

```
Object:      p6.Box6.#Button647
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(7)
             endMethod
```

```
Object:      p6.Box6.#Button645
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(10)
             endMethod
```

```
Object:      p6.Box6.#Button643
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(11)
             endMethod
```

```
Object:      p6.Box6.#Button639
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(6)
             endMethod
```

```
Object:      p6.Box6.#Button478
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(5)
             endMethod
```

```
Object:      p6.Box6.#Button476
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(4)
             endMethod
```

```
Object:      p6.Box6.#Button474
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(1)
             endMethod
```

Table J-26. BIO form source code (Continued).

```
Object:      p6.Box6.#Button468
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(3)
             endMethod
```

```
Object:      p6.Box6.#Button466
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(2)
             endMethod
```

```
Object:      p5.Box5.#Button625
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(6)
             endMethod
```

```
Object:      p5.Box5.#Button637
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(8)
             endMethod
```

```
Object:      p5.Box5.#Button635
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(9)
             endMethod
```

```
Object:      p5.Box5.#Button633
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(7)
             endMethod
```

```
Object:      p5.Box5.#Button631
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(10)
             endMethod
```

Table J-26. BIO form source code (Continued).

```
Object:      p5.Box5.#Button629
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(11)
             endMethod
```

```
Object:      p5.Box5.#Button463
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 close()
             endMethod
```

```
Object:      p5.Box5.#Button461
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(5)
             endMethod
```

```
Object:      p5.Box5.#Button459
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(4)
             endMethod
```

```
Object:      p5.Box5.#Button457
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(1)
             endMethod
```

```
Object:      p5.Box5.#Button451
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(3)
             endMethod
```

```
Object:      p5.Box5.#Button449
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(2)
             endMethod
```

Table J-26. BIO form source code (Continued).

```
Object:      p4.Box4.#Button623
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(8)
             endMethod
```

```
Object:      p4.Box4.#Button621
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(9)
             endMethod
```

```
Object:      p4.Box4.#Button619
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(7)
             endMethod
```

```
Object:      p4.Box4.#Button617
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(10)
             endMethod
```

```
Object:      p4.Box4.#Button615
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(11)
             endMethod
```

```
Object:      p4.Box4.#Button446
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(6)
             endMethod
```

```
Object:      p4.Box4.#Button429
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 close()
             endMethod
```

Table J-26. BIO form source code (Continued).

```
Object:      p4.Box4.#Button444
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(5)
             endMethod
```

```
Object:      p4.Box4.#Button442
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(4)
             endMethod
```

```
Object:      p4.Box4.#Button440
MethodName:  pushButton
             Source: method pushButton(var eventInfo Event)
             moveToPage(1)
             endMethod
```

```
Object:      p4.Box4.#Button434
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(3)
             endMethod
```

```
Object:      p4.Box4.#Button432
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(2)
             endMethod
```

```
Object:      p3.Box3.#Button600
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(6)
             endMethod
```

```
Object:      p3.Box3.#Button612
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(8)
             endMethod
```

Table J-26. BIO form source code (Continued).

```
Object:      p3.Box3.#Button610
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(9)
             endMethod
```

```
Object:      p3.Box3.#Button608
MethodName:  pushButton
Source:          method pushButton(var eventInfo Event)
             moveToPage(7)
             endMethod
```

```
Object:      p3.Box3.#Button606
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(10)
             endMethod
```

```
Object:      p3.Box3.#Button604
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(11)
             endMethod
```

```
Object:      p3.Box3.#Button598
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 close()
             endMethod
```

```
Object:      p3.Box3.#Button427
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(5)
             endMethod
```

```
Object:      p3.Box3.#Button425
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(4)
             endMethod
```

Table J-26. BIO form source code (Continued).

```
Object:      p3.Box3.#Button423
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(1)
             endMethod
```

```
Object:      p3.Box3.#Button417
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(3)
             endMethod
```

```
Object:      p3.Box3.#Button415
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(2)
             endMethod
```

```
Object:      p2.Box2.#Button412
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 close()
             endMethod
```

```
Object:      p2.Box2.#Button583
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(6)
             endMethod
```

```
Object:      p2.Box2.#Button579
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(11)
             endMethod
```

```
Object:      p2.Box2.#Button577
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(10)
             endMethod
```

Table J-26. BIO form source code (Continued).

```
Object:      p2.Box2.#Button575
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(7)
             endMethod
```

```
Object:      p2.Box2.#Button573
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(9)
             endMethod
```

```
Object:      p2.Box2.#Button571
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(8)
             endMethod
```

```
Object:      p2.Box2.#Button410
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(5)
             endMethod
```

```
Object:      p2.Box2.#Button408
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(4)
             endMethod
```

```
Object:      p2.Box2.#Button406
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(1)
             endMethod
```

```
Object:      p2.Box2.#Button400
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(3)
             endMethod
```

Table J-26. BIO form source code (Continued).

```
Object:      p2.Box2.#Button398
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(2)
             endMethod
```

```
Object:      p1.Box1.#Button721
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 close()
             endMethod
```

```
Object:      p1.Box1.#Button596
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(8)
             endMethod
```

```
Object:      p1.Box1.#Button594
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(9)
             endMethod
```

```
Object:      p1.Box1.#Button592
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(7)
             endMethod
```

```
Object:      p1.Box1.#Button590
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(10)
             endMethod
```

```
Object:      p1.Box1.#Button588
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(11)
             endMethod
```

Table J-26. BIO form source code (Continued).

```
Object:      p1.Box1.#Button395
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(6)
             endMethod
```

```
Object:      p1.Box1.#Button393
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(5)
             endMethod
```

```
Object:      p1.Box1.#Button391
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(4)
             endMethod
```

```
Object:      p1.Box1.#Button389
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(1)
             endMethod
```

```
Object:      p1.Box1.#Button383
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(3)
             endMethod
```

```
Object:      p1.Box1.#Button381
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(2)
             endMethod
```

Table J-27. AGENCY form source code.

```
Object:      #FormData1
MethodName:  arrive
Source:      method arrive(var eventInfo MoveEvent)
             var
                 agencyTable     Table
             endVar

                 if eventInfo.isPreFilter() then
                     ;// This code executes for each object on the form:

                 else
                     ;// This code executes only for the form:
                     agencyTable.attach(":AGENCY:A_GENCY.DB")
                     if isTable(agencyTable) then
                         agencyTable.setIndex("name")
                     else
                         msgInfo("ERROR","Problem opening table!")
                     endIf
                 endIf

             endMethod
```

```
Object:      #Page2.pocBox.FNameOfHead
MethodName:  calcField
Source:      [A_GENCY.FNameOfHead]+" "+[A_GENCY.MName/InitOfHead]
             +" "+[A_GENCY.LNameOfHead]
```

```
Object:      #Page2.titleBlock1.rtnButton
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             var
                 f    Form
             endVar

             ; return to the master form

             close()
             endMethod
```

Table J-28. EXPERTS form source code.

```
Object:       #FormData1
MethodName:   Var
Source:       Var
                  RecNum          LongInt
                  rec             String
                  tcChange        TCursor
                  sVal1, sVal2    String
                  nVal1, nVal2    Number
                  aVal1, aVal2    AnyType
              endVar
```

```
Object:       #FormData1
MethodName:   open
Source:       method open(var eventInfo Event)
              if eventInfo.isPreFilter()
                  then
                      ; This code executes for each object on the form.

                  else
                      ; This code executes only for the form.
                  doDefault
                      ;maximize()
                      showSpeedBar()
              endIf
              endMethod
```

```
Object:       #FormData1
MethodName:   arrive
Source:       method arrive(var eventInfo MoveEvent)

              if eventInfo.isPreFilter() then
                  ;// This code executes for each object on the form:

              else
                  ;// This code executes only for the form:
                  showSpeedBar()
                  doDefault
                  RecNum = 1
              endIf

              endMethod
```

Table J-28. EXPERTS form source code (Continued).

```
Object:       #FormData1
MethodName:   depart
Source:       method depart(var eventInfo MoveEvent)

                  if eventInfo.isPreFilter() then
                      ;// This code executes for each object on the form:
                      active.endEdit()
                  else
                      ;// This code executes only for the form:

                  endIf

              endMethod
```

```
Object:       #FormData1
MethodName:   mouseDouble
Source:       method mouseDouble(var eventInfo MouseEvent)

              if eventInfo.isPreFilter() then
                  ;// This code executes for each object on the form:
                  active.edit()
              else
                  ;// This code executes only for the form:

              endIf

              endMethod
```

```
Object:       #FormData1
MethodName:   changeValue
Source:       method changeValue(var eventInfo ValueEvent)
              var
                  fs FileSystem
                  tc TCursor
                  tblName String
              endVar

                  if eventInfo.isPreFilter() then
                      ;// This code executes for each object on the form:
                      doDefault                ;force the new data to post
                  ;   msgInfo("DEBUG 2", "Value of this field is:  "+
                  ;   active.value)
                      if tcChange.open(":edit:edit.db") then
                          message("Editing EDIT.DB")
                          sleep(500)
```

Table J-28. EXPERTS form source code (Continued).

```
            tcChange.edit()
            tcChange.end()
            tcChange.insertAfterRecord()

            tcChange.Date = today()
            tcChange.Time = time()
            tcChange.Directory = fs.fullName()
            tcChange.FieldVal = strVal(active.value)
            tcChange.FieldName = active.fieldName
            tcChange.FieldType = active.fieldType
            tcChange.TableName = active.self.TableName
;           msgInfo("TABLE NAME",active.self.tableName)

            tc.open(tcChange.TableName)
            tc.attach(active)
            tc.fieldValue(1,aVal1)

;           msgInfo("DEBUG","aVal1 = "+ strVal(aVal1))

            tcChange.RecordNum = aVal1
;           tcChange.ActionTaken = "Changed"

            sVal1 = "Enter your NAME and Reason for the change."
            sVal1.view()
            tcChange.Comments = sVal1

            tcChange.endEdit()
            message ("Done")

            sound(1320,50)
        else
            msgInfo("WARNING","We have a problem here, could not write to
            EDIT.DB")

        endIf
    else
        ;// This code executes only for the form:

    endIf

endMethod
```

Table J-28. EXPERTS form source code (Continued).

```
Object:       #Page120.#Box123.#Button100
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              moveToPage(1)
              endMethod
```

```
Object:       #Page120.#Box123.educationButton1
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              moveToPage(2)
              endMethod
```

```
Object:       #Page52.Box4.#Button56
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              moveToPage(1)
              endMethod
```

```
Object:       #Page52.Box4.contactButton
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
                  moveToPage(3)
              endMethod
```

```
Object:       #Page52.Box4.meetingButton
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
                  moveToPage(3)
              endMethod
```

```
Object:       #Page2.#Box182.PreviousRecord
MethodName:   mouseEnter
Source:       method mouseEnter(var eventInfo MouseEvent)
                  doDefault
                  message("Move to Previous Record")
              endMethod
```

```
Object:       #Page2.#Box182.PreviousRecord
MethodName:   mouseExit
Source:       method mouseExit(var eventInfo MouseEvent)
```

Table J-28. EXPERTS form source code (Continued).

```
        doDefault
        message("")
    endMethod
```

```
Object:       #Page2.#Box182.PreviousRecord
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  tc   TCursor
                  tbl  Table
                  scratch DynArray[]  AnyType
                  tblName     String
              endVar
              tblName = ":WORK:X_PERS"

              if tc.open(tblName)  then

                  if RecNum = 1 then
                      msgStop("That's IT!", "No more records")
                  else
                      tc.moveToRecNo(RecNum - 1)
                      RecNum = tc.recNo()
                      resync(tc)
                  endIf

              else
                  msgStop("Sorry", "Can't open " + tblName + " table.")
              endIf
              endMethod
```

```
Object:       #Page2.#Box182.FirstRecord
MethodName:   mouseEnter
Source:       method mouseEnter(var eventInfo MouseEvent)
                  doDefault
                  message("Move to First Record")
              endMethod
```

```
Object:       #Page2.#Box182.FirstRecord
MethodName:   mouseExit
Source:       method mouseExit(var eventInfo MouseEvent)
                  doDefault
                  message("")
              endMethod
```

Table J-28. EXPERTS form source code (Continued).

```
Object:       #Page2.#Box182.FirstRecord
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  tc   TCursor
                  tbl  Table
                  scratch DynArray[]  AnyType
                  tblName     String
              endVar
              tblName = ":WORK:X_PERS"

              if tc.open(tblName)  then

                  if RecNum = 1 then
                      msgStop("That's IT!", "No more records")
                  else
                      tc.home()
                      RecNum = 1
                      resync(tc)
                  endIf

              else
                  msgStop("Sorry", "Can't open " + tblName + " table.")
              endIf
              endMethod
```

```
Object:       #Page2.#Box182.PrevRecGrp
MethodName:   mouseEnter
Source:       method mouseEnter(var eventInfo MouseEvent)
                  doDefault
                  message("Move to Previous Record Group")
              endMethod
```

```
Object:       #Page2.#Box182.PrevRecGrp
MethodName:   mouseExit
Source:       method mouseExit(var eventInfo MouseEvent)
                  doDefault
                  message("")
              endMethod
```

```
Object:       #Page2.#Box182.PrevRecGrp
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  tc   TCursor
                  tbl  Table
```

Table J-28. EXPERTS form source code (Continued).

```
    scratch DynArray[]  AnyType
    tblName     String
    grp LongInt
endVar
tblName = ":WORK:X_PERS"

if tc.open(tblName)  then

    if tc.nRecords() <= 400 then
        grp = 20
    else
        grp = tc.nRecords() / 20
    endIf

    if RecNum = 1 then
    msgStop("That's IT!", "No more records")
    else
        tc.moveToRecNo(RecNum - grp)
        RecNum = tc.recNo()
        resync(tc)
    endIf

else
    msgStop("Sorry", "Can't open " + tblName + " table.")
endIf
endMethod
```

```
Object:       #Page2.#Box182.LastRecord
MethodName:   mouseEnter
Source:       method mouseEnter(var eventInfo MouseEvent)
                  doDefault
                  message("Move to Last Record")
              endMethod
```

```
Object:       #Page2.#Box182.LastRecord
MethodName:   mouseExit
Source:       method mouseExit(var eventInfo MouseEvent)
                  doDefault
                  message("")
              endMethod
```

```
Object:       #Page2.#Box182.LastRecord
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
```

Table J-28. EXPERTS form source code (Continued).

```
var
    tc   TCursor
    tbl  Table
    scratch DynArray[]  AnyType
    tblName     String
endVar
tblName = ":WORK:X_PERS"

if tc.open(tblName)  then

    if RecNum = tc.nRecords() then
        msgStop("That's IT!", "No more records")
    else
        tc.end()
        RecNum = tc.nRecords()
        resync(tc)
    endIf

else
    msgStop("Sorry", "Can't open " + tblName + " table.")
endIf
endMethod
```

```
Object:       #Page2.#Box182.NxtRecGrp
MethodName:   mouseEnter
Source:       method mouseEnter(var eventInfo MouseEvent)
                  doDefault
                  message("Move to Next Record Group")
              endMethod
```

```
Object:       #Page2.#Box182.NxtRecGrp
MethodName:   mouseExit
Source:       method mouseExit(var eventInfo MouseEvent)
                  doDefault
                  message("")
              endMethod
```

```
Object:       #Page2.#Box182.NxtRecGrp
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  tc   TCursor
                  tbl  Table
                  scratch DynArray[]  AnyType
                  tblName     String
                  grp LongInt
```

Table J-28. EXPERTS form source code (Continued).

```
endVar
tblName = ":WORK:X_PERS"

if tc.open(tblName)  then

    if tc.nRecords() <= 400 then
        grp = 20
    else
        grp = tc.nRecords() / 20
    endIf

    if RecNum = tc.nRecords() then
        msgStop("That's IT!", "No more records")
    else
        tc.moveToRecNo(RecNum + grp)
        RecNum = tc.recNo()
        resync(tc)
    endIf

else
    msgStop("Sorry", "Can't open " + tblName + " table.")
endIf
endMethod
```

```
Object:       #Page2.#Box182.NextRecord
MethodName:   mouseEnter
Source:       method mouseEnter(var eventInfo MouseEvent)
                  doDefault
                  message("Move to Next Record")
              endMethod
```

```
Object:       #Page2.#Box182.NextRecord
MethodName:   mouseExit
Source:       method mouseExit(var eventInfo MouseEvent)
                  doDefault
                  message("")
              endMethod
```

```
Object:       #Page2.#Box182.NextRecord
MethodName:   pushButton
Source:       method pushButton(var eventInfo Event)
              var
                  tc   TCursor
                  tbl  Table
                  scratch DynArray[]  AnyType
                  tblName     String
```

Table J-28. EXPERTS form source code (Continued).

```
endVar

tblName = ":WORK:X_PERS"

if tc.open(tblName) then
    if RecNum = tc.nRecords() then
        msgStop("That's IT!", "No more records")
    else
        tc.moveToRecNo(RecNum + 1)
        RecNum = tc.recNo()
        resync(tc)
    endIf

else
    msgStop("Sorry", "Can't open " + tblName + " table.")
endIf
endMethod
```

```
Object:      #Page2.rtnButton
MethodName:  arrive
Source:      method arrive(var eventInfo MoveEvent)
             endMethod
```

```
Object:      #Page2.rtnButton
MethodName:  depart
Source:      method depart(var eventInfo MoveEvent)
                 message("")
             endMethod
```

```
Object:      #Page2.rtnButton
MethodName:  mouseEnter
Source:      method mouseEnter(var eventInfo MouseEvent)
                 message("Close this form and return to Master Form.")
             endMethod
```

```
Object:      #Page2.rtnButton
MethodName:  mouseExit
Source:      method mouseExit(var eventInfo MouseEvent)
                 message("")
             endMethod
```

Table J-28. EXPERTS form source code (Continued).

```
Object:      #Page2.rtnButton
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             var
                 f    Form
             endVar

             ; return to the master form

             close()
             endMethod
```

```
Object:      #Page2.#Box40.#Box45.contactButton
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(3)
             endMethod
```

```
Object:      #Page2.#Box40.#Box45.meetingButton
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
                 moveToPage(3)
             endMethod
```

```
Object:      #Page2.#Box40.#Box31.educationButton
MethodName:  pushButton
Source:      method pushButton(var eventInfo Event)
             moveToPage(2)
             endMethod
```

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